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RAIL-ROAD NEWS.

Pacific Railroad.

The Board of Directors of this railroad have presented their Second Annual Report. Thirty-seven miles of this road, from St. Louis to Franklin Co., Mo., are now in the course of construction, about 1,000 hands are employed. Three locomotives—two from Paterson, N. J., and one from Taunton, Mass.—will soon be ready, and five additional locomotives are to be added in two years. The rails to be used are of English T iron. The State of Missouri has voted $2,000,000 for the construction of this road. The State bonds of the road are now held above par. The benefits which rail-roads confer upon land-holders, perhaps above all others, have been exemplified in a most striking light by the Pacific Railroad; lands adjacent to the line have recently trebled in price: some which were valued at $1,50 per acre, have arisen to $10, and some which were held to be worth $30, have been sold for $100. It has infused a new spirit of energy in the people, and many new settlers have been attracted thither. The object of the people of St. Louis, in constructing this road at present, is a sagacious one, viz., "to hold St. Louis to her true destiny as the Central City of the Mississippi Valley." They have petitioned the General Government for a donation of lands, to construct the road to the boundary line of the State, but Congress coupled the grant with so many restrictions that they sent word to their Representatives they could not accept of it upon such burdensome conditions, but would rather take advantage of a pre-emption right to a limited number of acres. Missouri is yet destined to be a very great State; its climate is delightful; its soil is fertile; its natural products varied, and its mineral resources inexhaustible; and St. Louis is on the highway from the Atlantic to San Francisco.

Railroad Accidents.

We have met people actually entertaining a horrible dread of railroad travelling: some willing to stay at home mainly because afraid to ride after the energetic tread of the iron-horse; while, on the other hand, there are many who complain of five minutes' delay, and are willing to risk every thing for extra speed gained by its employment. We believe it is true that the accidents on railways are one hundred per cent. less than those incurred by coach travelling—take the average, and we shall find the number of deaths below that of the old coaching system. We think that the railway proprietors use all wholesome precautions, and as the public have demanded high speed, it is not altogether right or justifiable to blame officers of roads, as casualties are unavoidable many times. A celebrated Englishman once properly remarked that a traveller was disappointed that he had not arrived at Exeter from London in three hours, and yet complained of the R.R. Co., because a tyre flew off. If the public demand improvements, a few casualties—and few they are compared with the traffic—must necessarily occur. There is nothing without risk; "if you prick your finger, why there's danger in it," says Shakspeare.

THE PLOWSHARE PROW.---Fig. 1.

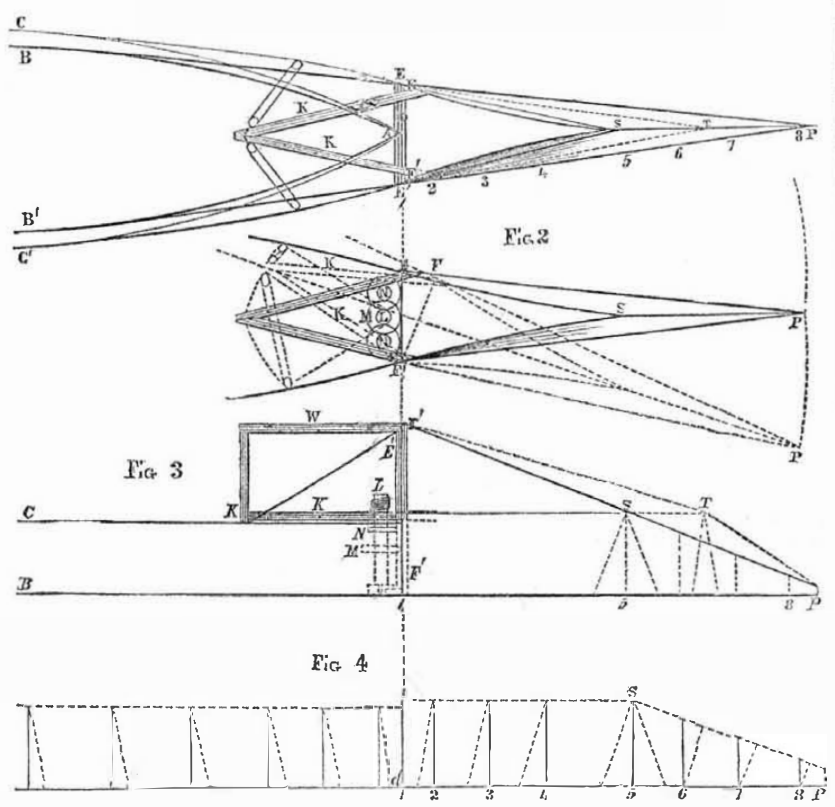


Fig. 2

Fig. 3

Fig. 4

Explanation of the Engravings.—To a flat-bottomed river steamer of 300 feet length, 40 feet beam on deck, and 35 feet at the bottom, it is proposed to add a Wave-line Prow of one-fourth the length of the boat, with a base of one half of the boat's medium beam, say 18 3-4 feet.

In fig. 1, A is the original cut-water; A B, A B′ is the bottom, and A C, A C′ the top of the original bows. In adding the Plowshare Prow to such a boat, a strong bulkhead is built across the cut-water (seen in the plan view at E E′, fig. 1, and in the elevation view, figs. 3 and 6); the sides of this bulkhead are vertical and parallel. The Prow is a double plowshare,

Fig. 5.

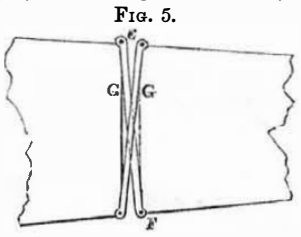
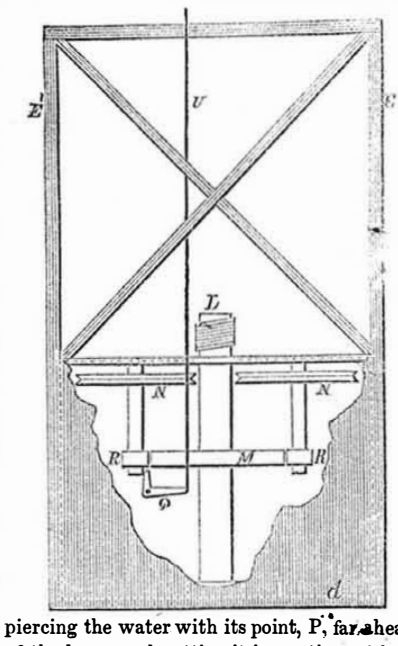
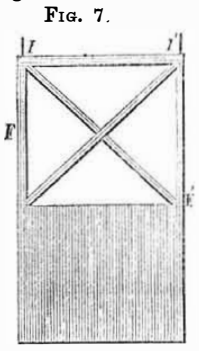


Fig. 6.



piercing the water with its point, P, far ahead of the bows, and putting it in motion with a gradually increasing force. Fig. 3 shows the Prow to be a prolongation of the boat's bottom; the long line, P A B, fig. 3, is the same as P E B, fig. 1; and S K C, fig. 3, is the same as S E C, fig. 1. Fig. 2 shows the Prow thrown to

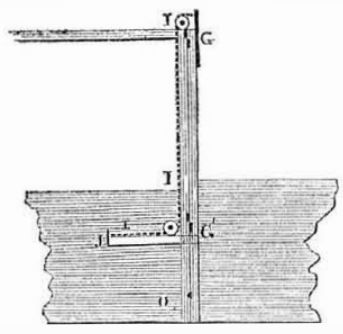
Fig. 7.



one side in steering. Fig. 5 shows the manner of hinging the Prow to the hull; the double hinges being represented as strained out of their true position, that their mode of construction may be the better illustrated. Fig. 7 is an end view (elevation) of the base or after-part of the Prow, with its bulkhead, and strongly braced posts. Fig. 8 shows how the tops of the prow-posts are securely fastened, by two iron chains, to the top of the hull-posts,—and these are also braced from the hog-chain of the boat. Fig. 6 is an end view, looking backward through the fore bulkhead of the hull, part of the bulkhead being torn away to show the steering apparatus under the deck of the forecastle. This figure is on a scale as large again as the others.

Construction—The bulkhead, E E′ fig. 1, is first to built up on the strong timber, D, notch-

Fig. 8.



ed into the bottom end of the cut-water. A new bottom, and new sides for the bows, are to be extended from the new bulkhead. On the ends of D, the posts, E E′, are set up and strongly braced, forming part of the supports for the pilot-house, the floor of which is seen at W, fig. 3. In front of this bulkhead the new Prow is hinged, having a base of just the same dimensions, although the base on which it turns may be shorter. The bottom side-edges of the Prow may be straight lines (as drawn here) for better resisting snags and stumps, or they, like the other parts of the Prow, may take the wave-line. Fig. 3 shows sections of the Prow, indicating the varying inclination of its sides. As here shown, these sides, measured vertically, are straight lines, but they may take any curve desired for them.

The Prow is to be securely planked up on its sides, top, bottom, and after-end or base. A small pump should be placed on the top. The strength of the Prow should be less than that of the bows, so that, in a collision, the Prow may certainly be broken to pieces rather than endanger the sinking of the boat.

The posts of the Prow, F F′, are attached to those of the hull, chiefly by the double hinges, G G′, figs. 5 and 8, so that it may turn to the right or left, in the horizontal plane. To keep the upper pair of hinges from ever being drawn out of shape, as in fig. 5, a strong chain, I I, fig. 8, starting from the top of each prow-post and passing over a pulley in the top of the hull-post, and around another pulley toward its bottom, is fastened to the end of the brace, J, fig. 8, which projects backwards from the bulkhead of the Prow, and enters a suitable recess in the bulkhead of the hull. When piercing the water, the Prow is strongly pressed downwards; this brace, then, attached to the Prow, draws hard upon its iron chain, binding the top of each prow-post firmly to its hull-post. A projection from each prow-post fits into a corresponding notch in its hull-post, as at O, fig. 8, so that the two sets of posts must always keep a true adjustment.

The timbers, K K, are of such strength as to turn the Prow just as the pilot may wish to steer. They have pulley-blocks at the end where they are bound together, the ropes from which, after passing through blocks at the sides of the boat, are wound around the upright barrel, L, which is turned by the large wheel, M. At N N′ are seen two wheels with a notched edge, for receiving endless ropes, which pass around similar wheels on the shafts of the paddle-wheels. While the boat is running, N N′ are always in motion, but in opposite directions. The pinions, R R′ are on the same shafts with N N′; so that if either pinion be pressed hard against the large wheel, M, the axis-barrel, L, will haul in upon one of the pulley ropes and pay out the other. If either engine is out of order, and not running, an endless rope must be passed around the two wheels, N N′, and crossed, so that the pilot's power over the prow may never be interrupted. The pinions, R R′, should act upon M rather by friction than by gearing. They are pressed hard against M (whenever the helmsman would alter the direction of the prow) by some such means as ropes or the bent lever, Q, and rod, U, shown in fig. 6—the bent lever controlling the position of its pinion. The rod, U, and its mate, should be brought within reach of the helmsman's feet, so that by pressure above, he may command the direction of the prow. A break should also act on the wheel, M, by pressure, upon which the prow may be steadily held at any angle of deflection. The wheel for working the rudder should be removed to the new stand for the pilot—its ropes being retained so that, when necessary, it can be worked by hand, while a new set of ropes from it are coiled around a suitable barrel on the axis, L.

The timbers, K K, instead of being framed into the base of the prow, must be fastened to it by iron pins, which can easily be drawn out by the helmsman (by means of a properly adjusted rope) without leaving his station. The

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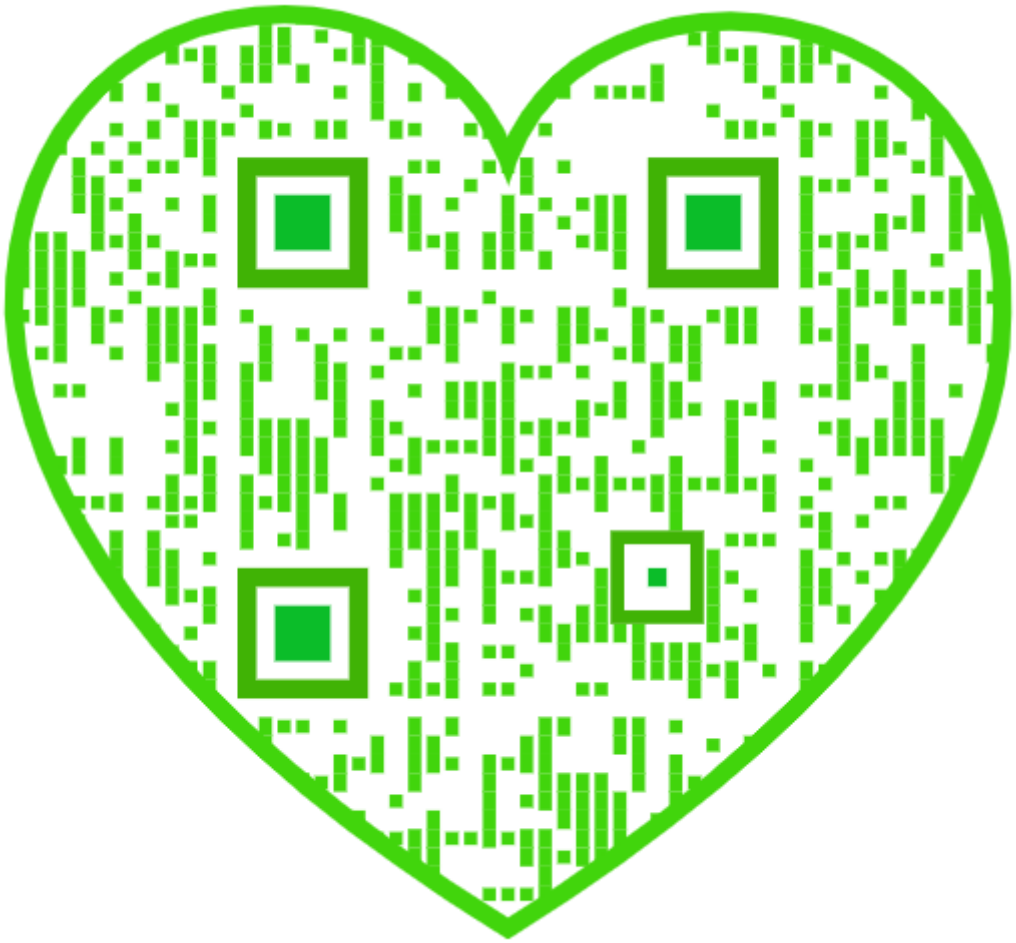

pins on which the double-hinges turn are to be arranged the same way, and also one end of each iron chain. For passing a canal lock, one side of the prow may be disengaged, and the prow swung around to the side of the hull. In case of fire, or of dangerous snagging, the pilot may run the prow with full force into the bank, or into a sand-bar, and thus securely anchor the boat—and the fastenings on the up-stream side of the prow being disengaged, the current will swing the boat against the bank or the bar, and the prow will hold it fast.

This Prow will greatly diminish the danger of running upon sand-banks and bars. It may plow its way through where the common boat would be stuck fast; and even if stopped by the plowshare turning too deep a furrow in the sand, we have only to back out instead of backing off.

The front edge of the Prow, from P to S, fig. 3, may be variously modified. The drawings represent two iron braces, F S, F' S, fig. 1, coming down from the tops of the prow-posts to S, and there firmly attached to the angle of the prow; but that angle may be put further forward, say at T, figs. 1 and 3, which would cause the faces of the prow to exert a much smaller downward pressure by the re-action of the water. The true theory of this prow is,—let the inclination of its sides be so proportioned to the inclination of the bows, that the downward tendency of the one shall be counterbalanced by the upward force of the other. The new boat should run upon an even keel—opening its double furrow through the water without any tendency to throw its prow above or below the line of the level of the boat's bottom.

The small quantity of water that will rise between the hull and prow bulkheads, when the prow is deflected in steering, will not interfere at all with the good behavior of the boat. The loss of power is too trifling for consideration.

The new boat will studiously avoid collisions; if, by any accident, her prow is broken, a jury-prow, made of the wide planks always kept on board, will enable her to make a port for repairs.

The increased speed to be gained by the plowshare Prow will invite to a new construction of all the forward part of the boat's upper works, for avoiding the resistance of the air, especially in head winds, as also to a substitute for our enormous chimneys. The question of a rough or smooth bottom and sides, will also soon become of very great importance. For our western steamers, coppering is out of the question; but is it not possible to have all the planking so sawed that the surface touching the water shall necessarily be smooth—be incapable of being roughened and splintered by the hard usage our boats are exposed to? The grain of the wood, as the plank is planed, should be seen to come to the surface in successive layers, from the forward end of the plank to its after end, so that the older the hull the higher polish should be seen on all its planking touched by the water.

Arrangements are in progress for securing letters patent for this invention. Persons desiring further information will please address John H. Ewin, Esq., Nashville, Tenn.

MISCELLANEOUS.

Animal Electricity.

M. Beckeinster, of Lyons, France, says the *Courrier des Etats Unis*, has obtained some singular electric results, by operating upon certain animals. The following is one which he states to have made upon a cat:—

When the weather is cool and the wind from the north dry, if the cat feels cool, a thing which can be perceived by the partially greasy appearance of the cat's hair—if the experimenter has cool hands, he will take the cat on his knees, will place his left finger on its breast, and will pass his hands, from the neck to tail, along the spinal column. After a few passes the electric shock will be produced. The shock seems to come from the breast of the cat, across the body of the experimenter and terminates in his other hand placed upon the back of the cat.

Though experiencing much pleasure at these passes, the cat runs off at full speed after the shock, and will hardly suffer the experiment to be repeated until the following day, when the disagreeable sensation will be partially forgotten.

One day I have obtained, with much trouble, three commotions from a cat. The last one was very weak. After each discharge the cat seems fatigued, and exhausted; he lays down, in an outstretched attitude. A few days after it loses its appetite—becomes sad and seems to avoid the place it was formerly attached to; it withdraws from the persons to whom it had been attached, and after refusing nourishment, it still drinks water from time to time, languishes more and more, foams at the mouth, and generally dies within the first fortnight which follows the first commotion.

I have repeated these experiments during various years, when the season was propitious, upon tame cats in my possession, and also upon those of my neighbors, who believed that I was merely caressing their cats. Some time after, I have always learned, these animals had perished without any apparent cause.

Emerald.

This precious stone, which ranks next to the diamond, and is equal to oriental ruby and sapphire, is of a beautiful green color. It occurs in prisms, with a regular hexagonal base; sp. gr. 2·7; it scratches quartz with difficulty, and is scratched by topaz, and fuses before the blow pipe into a frothy bead. Its analysis has been differently stated by different chemists; but it appears to contain about 14 per cent. of glucina, (which is its characteristic constituent,) 68 of silica, 16 of alumina, and a very small portion of lime and iron; it also contains 1 per cent. of oxide of chromium, to which it owes its color. The paler varieties of this stone are known under the name of beryl; they are colored by the oxide of iron. Aquamarine includes clear beryls of a sea-green, or pale bluish, or bluish green tint.

The finest emeralds come from Grenada, where they occur in dolomite. A crystal from this locality, in the cabinet of the Duke of Devonshire, measures in its greatest diameter 2 3-8ths inches nearly; its lesser diameter barely 2 in.; its third diameter 2 1-8th in.; the extreme length of the prism is 2 inches. It contains several flaws, and therefore only partially fit for jewelry; it has been valued at more than $2,500. A more splendid specimen, weighing 6 ounces, belonging to Mr. Hope, cost $2,500. Both these specimens were exhibited in the Great Exhibition.—Emeralds of less beauty, but of very large size, occur in Siberia. One specimen in the imperial collection of Russia measures 4½ inches in length and 12 in breadth. Another is 7 inches long and 4 broad, and weighing 6 lbs.

The finest beryls (aquamarines) come from Siberia, Hindostan, and Brazil. In the United States very large beryls have been obtained, but seldom transparent crystals; they occur in granite or gneiss.

Night Air.

It is a prevalent idea that *night air* is not so healthy as the atmosphere when under the influence of light. This opinion must have originated from some cause, or else it must be set down among old wives' fables. No one ever had an opinion that the composition of *air* was changed during the night hours, but certainly it is well known, that air and the atmosphere are two different things. The atmosphere may become perfectly corrupt, and in many places it becomes so, but air is a fixed composition, therefore, when it becomes mixed with a superabundance of carbonic acid or any other gas, it is no longer air.—The atmosphere—that ocean in which we continually bathe, and on which we continually feed, often becomes unfit for respiration by extraneous matter floating in it, under the different names of miasma, infection, &c. It has been said, "the belief of night air being injurious, is an error, which has hindered the introduction of ventilation more than all others." This we do not believe, for it is well known that the effluvia of marshes is the most dangerous during night hours, and those who are exposed to the *night air* in any country, except upon the ocean, never enjoy such good health as those who are protected from its influence. The domestic animals, such as cows and horses, which are housed every night in summer, "do better," as the farmers say, than those which are exposed to the free ventilation of chilling damps, and the extraneous gases which sluggishly float near the earth's surface at night, owing to the absence of the sun, which, during the day, carries them up like the dew, above the stratum in which we live and walk. No one ever supposed that the pure atmosphere had anything to do with causing the death of persons exposed at night within the tropics; nor does it produce the cough of the consumptive and asthmetic, nor the langour and misery which the sick so frequently experience.

These and other sufferings experienced more particularly at night, are caused by carbonic acid, absence of sun-light, rapid reduction of temperature, the air being saturated with moisture, &c., and not by that air without which we cannot live three minutes. It is absurd to suppose that fresh air supports our life and destroys our health at one and the same time. The same thing cannot possess the utterly incompatible character of good and evil, of supporting life and destroying it. It is all nonsense to talk about pure air being hurtful to life and health, at any season by night or day, but while carbonic acid, absence of sun light, rapid reduction of temperature, the atmosphere saturated with moisture, &c., at night, are the causes of sickness and suffering, it is no error to believe that the night atmosphere is oftentimes injurious to health. A belief in this need not prevent good ventilation, for if cotton cloth screens are placed in windows during night hours, a free ventilation is obtained, and the air is somewhat rarified, before it enters the apartment; this meets all the necessary conditions of freedom from exposure, and a plentiful supply of as good air as can be obtained. Those who believe that constant exposure to night air is not injurious, have never had the good fortune of trusting to that notable appendage, placed so prominently on man's front for a detector, viz., a good olfactory explorer.

Variola and Vaccination.

A committee appointed by the Medical Society of the State of Pennsylvania, has lately made a report, through Dr. Emerson, respecting the effects of vaccination. The committee was appointed to examine into the statements which had been put forth by Dr. Gregory, of London, and Dr. Caznave, of Paris, who had written and published statements respecting the growing insufficiency of vaccination as a preventive for dangerous small pox. The opinions set forth by these eminent foreign physicians were calculated to unsettle the views of physicians, and shake their confidence in the protective powers of vaccination. If correct, the sooner this was generally known so much the better; if erroneous, the sooner this was settled it would be to the advantage of all persons. The appointment of the Pennsylvania committee to examine into the subject was judicious. The principal points to be considered were, first, whether persons vaccinated lose, through lapse of time, any protective power once afforded against small pox; second, whether the prophylactic powers of vaccination, performed during infancy, are restricted to the first fifteen years of life, and of no avail afterwards; third, whether the accumulated evidence of the present day is calculated to sustain Dr. Gregory in his belief that the efficacy of cow pox as a protection against small pox, has diminished, and a large increase of small pox resulted from the extension of vaccination; fourth, whether, as asserted by Drs. Gregory and Caznave, inoculation, after the fifteenth year of age, of persons previously vaccinated, produces a specific papular eruptive disease, of a non-contagious character, unattended with danger, and giving protection in after life against small pox; fifth, whether circumstances exist which render it most advantageous to substitute inoculation for vaccination, after the fifteenth year of age, as proposed by Dr. Gregory.

It was stated that the agent for producing small pox had for a long time been kept in check, and its total extermination nearly completed, but that within a few years a new form of disease "varioloid," had arisen, and Dr. Gregory promulgated statements to show that vaccination was diminished in potency by lapse of time, and that this small pox of late years had greatly increased.

In England the Epidemiological Society were startled by Dr. Gregory's views, and it also appointed a committee to examine into the subject; that society has received 430 replies from practicing physicians in different parts of England, and only one expressed a doubt about the efficacy of the cow pox; they were adverse to Dr. Gregory's views. He took his cases from hospitals, where other causes were, no doubt, in operation to produce the sad results he sets forth. Previous to the introduction of vaccination in England, the annual mortality from small pox was 40,000, or one tenth of all the deaths from every other source. In 1850 the number of deaths in London by small pox was only 498, while the population was four times more than it was in 1750, when the deaths by small pox numbered 2,036.

This confutes Dr. Gregory's views entirely. In Prussia the number of deaths by small pox, in 1803, were 40,000, in a population of 10,000,000; at that time inoculation was the only protection relied on. In 1849, when the population had increased to 16,000,000, the mortality from small pox was only 1,760, thus showing how the mortality had decreased, vaccination having come nearly into general use within the past ten years. One hundred and eighty-two practicing physicians in England, state, they have never known a death from small pox after vaccination. Some deaths have taken place by small pox after vaccination, but not many, and very peculiar causes apart from the disease might have caused the mortality. In the London Small Pox Hospital, 40,000 persons were vaccinated during the past 16 years, and not one of whom had ever returned with small pox.

The committee of the Pennsylvania State Medical Society have reported against every point advanced by Drs. Gregory and Caznave, and thus conclude their report:

"Your committee have no hesitation in expressing it as their belief, that no circumtances exist to justify the general substitution of inoculation after the 15th year of age, as proposed by Dr. Gregory; and they regret that at the present time, whilst strenuous efforts are making, through individual exertions, occasionally helped forward by judicious legislation, statements calculated to lessen confidence in the protecting power of vaccination should have been promulgated by Dr. Gregory. Happily, however, abundant evidence exists to show that although the hopes of complete exemption from small pox, once fondly indulged, have not been fully realized, vaccination still offers the only dependence for protection against a disease, the fearful ravages of which have tended so much to darken the pages of history, previous to the precious discovery made by Jenner.

Patent Matters.

Senator Dawson has reported a bill giving the Chief Clerk of the Patent Office all the powers and functions of the Commissioner, and ratifying and confirming all his acts as Acting Commissioner during the temporary absence of the Commissioner of Patents. The bill was considered, and ordered to be engrossed on Wednesday last week.

This scarcely required a bill, as it has been always customary for the said clerk to exercise the very powers which this bill designs to confer upon him, and the U. S. Courts have always recognized the signature of the Chief Clerk as *legal*—full authority on a patent.—The re-issued Woodworth patent is not signed by Mr. Burke, the then Commissioner of Patents, but his Chief Clerk.

Mills for Grinding.

John Todd, of Potter's Mills, Pa., has invented an improvement in mills for grinding, the nature of which consists in a peculiar manner of feeding the grain, or other substance to be ground between the stones; also an arrangement to allow the runner stone to have an equal play, also a peculiar manner of elevating and depressing the lower stone or runner by means of inclines cut in cylinders. Measures have been taken to secure a patent.

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(For the Scientific American.)

Electro-Magnetism as a Motive Power.

Eletro-magnetism, fifty years ago, was a mere toy, while at present we can use it to propel massive machinery, and transmit intelligence to the distance of thousands of miles in a few seconds: but it by no means follows that it has arrived at its perfection.

It is the province of art to improve nature, but in this instance art has not even arrived to the perfection that nature has.

Electro-magnetism, at present, is incapable of propelling a ship across the Atlantic economically, whilst nature has living electro-magnetic machines (the bird) that can not only cross it more economically than steam power, but in a much shorter time. (Carrier-pigeons have been known to fly 2,000 miles, and it is supposed without a supply of food.) What a remarkable difference between the construction of the galvanic battery of nature and that of art,—the one constructed of metal and the other of no metallic substance; the one obtains galvanism from the acid and water employed in dissolving the metal, and the other from the respired air. Arterial blood, viewed through the microscope, is found to contain minute red globules, which are found to be composed principally of per oxide of iron; these globules, although constituting only the one-thousandth part, impart the red color to the whole mass. Now the blood is forced by the heart to all parts of the body, where the oxygen parts with iron and combines with the waste carbon of the system; it is returned by the veins to the lungs, and then expelled from the system as carbonic acid. The iron again combines with fresh oxygen, and the process is repeated; in this process the oxygen gives out electricity and heat.

According to Dr. Boynton, about one-fifth of the blood in man is monopolized or consumed by the brain, although that organ is perhaps only the one-thirtieth part of the body. Now this large quantity of blood parts with its electricity to the brain, which serves to store or accumulate electricity for use; or, in other words, the brain is to the body what the Leyden jar is to the electrical machine; from the brain the electricity is conducted by the nerves to the muscles, or electro-magnets of the animal, which produce animal motion.

Now, how different this arrangement of nature to that of art, the one using light, compact, and cheap materials (carbon and air), whilst the other uses those that are heavy, bulky, and expensive, to produce electro-magnetism. The one also uses heavy and bulky machiney, the other light, compact, neat, and yet strong.

It is remarkable, that where we use concentrated and dangerous acids, nature uses an inoffensive, yea, even healthy substance (air) to obtain electricity from: air is always at hand, it requires no previous preparation, and its supply being abundant, requires no vessels to contain it. In our galvanic batteries, the acids required weigh more, and occupy more room, than all the rest of the battery, whereas nature takes no more than is requisite for instant consumption.

It is wonderful and grand to see the extraordinary wisdom displayed in the mechanical construction, chemical composition and action of the bird and other animate bodies, yet we must understand them both before we can think of navigating the air, or even the ocean, by electro-magnetism.

According to Allen and Pepys, a pigeon threw off 96 grains of carbon, in the shape of carbonic acid, in 24 hours—a pigeon will weigh about one pound. Now suppose double the above amount of carbon were consumed by the bird whilst flying, we have 192 grains or 1-30th of a pound of carbon propelling the bird for 24 hours, or rather it is the electricity obtained from the oxygen of the air—that is the power, the carbon serving merely as a base. A pigeon will fly about sixty miles per hour, or 1440 miles per day; here we have a ship that will cross the Atlantic in less than two days. J. F. Mascher.

A Neat Craft.

La Esperanza is the name of a beautiful little schooner of 21½ tons burthen, and drawing only two feet of water when loaded which was expected to sail from New Haven, last week, for Lake Nicaragua, via San Juan. She was built at New Windsor, on the Hudson river, for Samuel B. Crofts, who designs running her on the Lake as a freight and market boat.

Tin Roofs.

Messrs. Editors—It is the custom, in the western section of our country, and also of Canada, not to paint tin roofs, while it is, in our section, the reverse of this—tin roofs being universally painted. It is claimed, in the West and the Canadas, that the roofs last longer without paint than with it, whilst here painting is resorted to to preserve the tin rooting. Now I wish to inquire which party is correct in their reasoning. I incline to favor the Western ideas for two reasons: first, because it will save a considerable expense, and second, because I think it is universally the custom to paint them more from a disposition to follow usage than from a conviction of necessity. I should like to be confirmed in every opinion, or corrected if I am in the wrong, and I resort to you for the purpose, presuming that you are the best qualified parties to impart correct information. H. E. R.

New Britain, Conn., June 7, 1852.

[Both parties are right—it all depends upon the climate. In the interior of our country there is no necessity for painting tin roofs, but near the sea-board there is a positive necessity for so doing. In New York, tin exposed to the rains and mists, without any paint or other covering, soon oxydizes—the iron soon appears through the tin. The reason why this is so, is owing to saline matter being broughtfrom the ocean with our eastern winds. In the Island of Britain, where there is such a moist saline atmosphere, the farmers never feed salt to their cattle; but, at the same time, the farmers there cannot use tin for roofing,—it *rusts* in a few days. In the interior of our country, where the atmosphere is free from saline matter, we have noticed that there was but little use in painting tin roofs. Observation is the only way to acquire correct information about such things. In our city it would be better if tin roofs were not painted for at least six months after they were put on. Tin, when new and handled by the roofers, is greasy, this prevents the paint (unless a great quantity of turpentine be used, which spoils it) from adhering to the tin, and it soon wears off. The exposure, before painting, also serves to *bite* into the tin, and affords a good ground for the more intimate union of the paint with the metal.—Ed.

The Engineers' Strike in England.

The engineers' *strike* in England, has terminated disastrously to the operatives. The employers have completely reduced the spirit of the men, and have compelled all those whose labors they have accepted to subscribe a document renouncing all connection with the Trades' Society. This is just such a result as we predicted. What chance had thousands of workingmen against a few men of great wealth, every one worth as much money as the whole Trades' Society put together. We knew what the result would be; it was a most unwise course of action for the men. We hope it will be a lesson to them and other like minded people for ever.

"The Amalgamated Society of Trades' Unions," in England, have come to a new conclusion, one which they should have come to long ago, as expressed by the following resolution:—

"We believe that 'hostile resistance of labor against capital is not calculated to enhance the condition of the laborer,' and advising that 'all the future operations of the society should be directed to promoting the system of self-employment in associated workshops.'"

While we are opposed to all tyranny, we cannot excuse a reckless want of wisdom in any body of men who have eyes to see, ears to hear, and memories to remember what has been done in other times. An employer has a perfect right to buy labor of any person he choses, and a workman has the same right to sell his to whom he chooses. Any body of men have a perfect right to *strike*—refuse to work—but they have no right to impose restrictions on employers, to which they would not be willing to submit themselves. These are our principles; we profess to know something about these things on both sides of the question.

Explosion of Burning Fluids.

E. N. Horsford, Rumford Professor in Harvard University, has presented his views on some explosions of burning fluids to the "American Academy of Arts and Sciences." The principal case which he discusses is an explosion of a can containing burning fluid, which took place at Salem, Mass., on the 24th of last February. An account of it, with diagrams, is presented by Prof. Horsford, in the Boston Traveller; it seems the can containing this fluid was standing on a shelf, and was corked, but not tightly; no fire had beem employed in the apartment during the morning the explosion took place, until a short time before the accident. The room was an unfinished out apartment; a cast-iron stove was placed near its centre, and between it and the can containing the fluid, there was one pail full of water, and an empty one; the fluid can was six feet from the stove, and three feet above the floor; to all appearance it was well sheltered from the heat. The top of the stove was red-hot when the explosion took place. But what was the cause of its exploding? Prof. Horsford comes to the conclusion that some of the fluid had evaporated from the can, mixed with the atmosphere, and thereby became an explosive mixture in the room, which was ignited by the red-hot plate of the stove, thus causing the explosion. This, to our mind, is a most rational and correct view of the question.

Prof. Horsford has devoted his attention in devising expedients to render the use of our clean burning fluids safe in the hands of the most unskillful, and his efforts have resulted in complete success. Lamps for this purpose will soon be made by him and Dr. Nichols, of Haverhill, which are to obviate all the dangers and allow the free use of such fluids. We have always discountenanced the use of the volatile burning fluids in families where there were children and young females, and we shall continue to do so until we are convinced that there is no danger. We are well aware that when gas was first introduced, a great number of accidents, by explosions, &c., took place, and its use as a dangerous illuminating substance was much opposed, on the ground of its dangers. These dangers have all been surmounted, and we trust it will soon be so with the volatile fluid hydro-carbons—burning fluids—for assuredly they are much cleaner than oil, and afford a more pleasant light.

English Model of the Yacht America.

An English paper says, Mr. Veal, a working shipwright of the Devonport dockyard, has made himself a sailing boat upon the lines supplied by Mr. W. Rundell, also a shipwright in the dockyard, after as nearly as possible the model of the America yacht. It was tried against the picked boats of the port, and it beat them all.

Her hull and her sails were as much like the America as possible. The boats with which she raced carried as much more canvas and when going before the wind got ahead of the America model boat. As soon as it became needful to close haul, she overhauled the whole of them, and won in gallant style. It appeared to surprise many practiced boat-builders that a craft with such limited sails should have beaten their "crack boats," but so it was.

A Telegraph.

Swiss papers state that a machinist in the Canton of Schwyz, has invented a new apparatus for printing by electric telegraph, by which each letter is printed in any required kind of type, by a single closing of the circuit, and the motion of the letter is accomplished by the action of one magnet and one commutator only. The paper which receives the impression from type, moves in regular correspondence with the action of the operator, and if he stops before the sentence is concluded, the paper likewise stops. The work is represented as equal to the best quality of print.

[We have seen the above in a number of our exchanges, without note or comment. They do not seem to know that House's Telegraph prints all its messages in Roman characters, plain as print, and ready to be set up by the compositor.

Sleep.

No person of active mind should try to prevent sleep, which, in such persons, only comes when rest is indispensable to the continuance of health. In fact, sleep once in twenty-four hours is as essential to the existence of mammalia as the momentary respiration of fresh air. The most unfavorable condition for sleep cannot prevent its approach. Coachmen slumber on their coaches, and couriers on their horses, whilst soldiers fall asleep on the field of battle, amidst all the noise of artillery and the tumult of war. During the retreat of Sir John More, several of the British soldiers were reported to have fallen asleep upon the march, and yet they continued walking onward. The most violent passions and excitement of mind cannot preserve even powerful minds from sleep; thus Alexander the Great slept on the field of Arbela, and Napoleon on that of Austerlitz. Even stripes and torture cannot keep off sleep, as crimnals have been known to sleep on the rack. Noises which serve at first to drive away sleep, soon become indispensable to its existence; thus a stage coach stopping to change horses, wakes all the passengers. The proprietor of an iron forge, who slept close to the din of hammers, forges, and blast furnaces, would awake if there was any interruption to them during the night; and a sick miller, who had his mill stopped on that account, passed sleepless nights until the mill resumed its usual noise. Homer, in the Illiad, elegantly represents sleep as overcoming all men, and even the gods, excepting Jupiter alone.

The length of time passed in sleep is not the same for all men: it varies in different individuals and at different ages; but it cannot be determined from the time passed in sleep, relative to the strength or energy of the functions of the body or mind. From six to nine hours is the average proportion, yet the Roman Emperor, Caligula, slept only three hours, Frederick of Prussia and Dr. John Hunter, consumed only four or five hours in repose, while the great Scipio slept during eight. A rich and lazy citizen will slumber from ten to twelve hours daily. It is during infancy that sleep is longest and most profound. Women also sleep longer than men, and young men longer than old. Sleep is driven away during convalescence, after a long sickness, by a long fasting and abuse of coffee. The sleepless nights of old age are almost proverbial. It would appear that carnivorous animals sleep in general longer than the herbivorous, as the superior activity of the muscles and senses of the former seem more especially to require repair.

Suspension Bridge.

The "St. John (N. B.) News," speaking of a suspension bridge, in progress of construction between that town and Carleton, says that the whole credit of the work is due to Americans. Serrell, the constructor, is the American Engineer who built the great Canadian Suspension Bridge. Mr. Reynolds, who originated the idea and collected the subscriptions, is an American. The firm who are erecting the towers, are also Americans.—"So," says the "News," "we shall be indebted to Jonathan for the beginning, making, and finishing, of one of the most spirited and curious undertakings known in America. The bridge will be 600 feet in length—and suspended nearly one hundred feet in the air.

New Enemy to the Pear.

A horticultural friend, yesterday, showed us a number of pear leaves, with a number of small green worms upon them, some so small as to be almost invisible, and the largest three-quarters of an inch in length. They are very ravenous, and some trees have been entirely stripped by them. The whale-oil soap, (about a pound to three gallons of water), kills them instantly. They commence by eating a small circular hole in the leaf, but soon demolish the whole, including the stem. —[Salem (Mass.) Gazette.

A new method of making yeast is to take a large teacupful of split and dried peas, put them in a pint of boiling water, cover them closely to exclude the air, place them by the side of the fire for twenty-four hours, when it should have a fine froth on the top. A table spoonful of the liquor raises one pound of flour.—[Ex.

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NEW INVENTIONS.

Improved Printing Press.

Joel Dinsmore, of Blooming Valley, Pa., has taken measures to secure a patent for improvements in Printing Presses. The object of this invention is to make a cheap press of a convenient form to be worked by hand, but capable of doing a greater amount of work in a given time than the common press. The printing is performed by passing the paper round a cylinder hung in a carriage, which is moved backwards and forwards along a stationary frame or railway, upon which is fixed a type-bed which carries the form, and at each end of which there is a feeding-board, from which the sheets are supplied to the cylinder. The cylinder is made to revolve by the movement of the carriage revolving in opposite directions. It is furnished with two sets of fingers, which take a sheet from each feeding-board, alternately, the cylinder carrying the sheet over the form and printing it as the said carriage moves towards the feeding-board; the fingers release the sheet at the proper time by suitable mechanism.

Improved Rifle Barrel.

Benjamin D. Sanders, of Holliday's Cove, Brooke Co., Va., has taken measures to secure a patent for an improvement in rifle barrels. The improvement consists in making the grooves of the barrel of a form somewhat resembling the letter V in their transverse section, that is to say, the bottom of a groove is formed by a single angle, instead of by two angles in the ordinary way. The object of the improvement is to make the patch, when inserted with the ball, fill the grooves more tightly than can be done by the common grooves. The barrel, by the new grooves, is kept more clean, as each patch cleans out the barrel completely in its course, and the explosive force of the powder is more directly confined and exerted upon the bullet than can be done in a barrel where the grooves are not so tightly packed by the patch.

Machinery for Scraping Ivory.

Benjamin S. Stedman, of West Meriden, Conn., has taken measures to secure a patent for improvements in machinery for scraping ivory, the principle of which consists in certains means for controlling the movements of the scraper, by which its edge may be made to describe either a straight line or various regular curves, which may be made to deviate in two opposite directions from a straight line, the said movements enabling it to scrape a plane surface, or a hollow, or rounding and curved surface. It is an important improvement in the art to which it belongs.

Marine Signals.

Thomas H. Dodge, of Nashua, N. H., has taken measures to secure a patent for a new and useful improvement on his Patent Signal Lights, which were illustrated and described on page 145, this volume of the Scientific American. Instead of employing two lamps, as represented in the illustration referred to, he now employs only one; the signal is made more simple, and at far less expense, and it can be seen on four sides. We shall soon publish an engraving of it, when a more full description of it will be presented to our readers. Good night-signals are among the most important inventions of the age.

Tennoning Whee Spokes.

J. J. Hibbard, of Hermitage, Wyoming Co., N. Y., has taken measures to secure a patent for an improved machine for tennoning spokes for wheels and for cutting the back or bevelled edge of the tonnon parallel with the point and straight edge. A knife is attached to a bed piece, said knife having a spring connected to it, and adjustable guides for the purpose of placing the spoke properly upon the bed, so as to cut it in the desired manner.

Saw Mill Improvements.

C. M. Miles, of Brockwayville, Pa., has taken measures to secure a patent for an improvement in saw mills, the nature of which consists in hanging, ranging, and guiding the saw by means, of rods, guides, and a cross-head, all these parts being peculiarly arranged to dispense with the common saw sash.

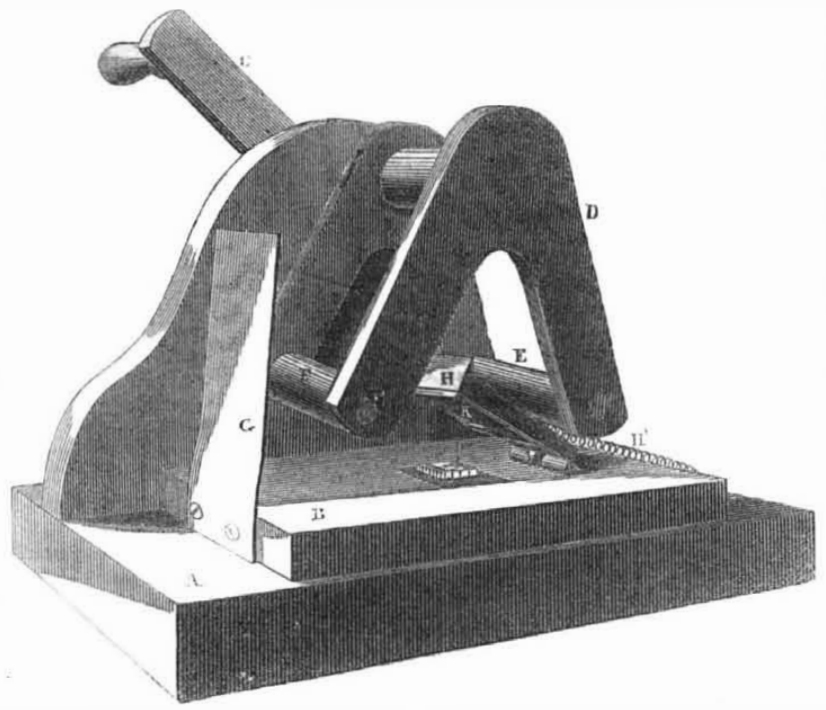
Attaching Hubs of Wheels to Axles.

David Arnold, of Londonderry, Vt., has taken measures to secure a patent for an improved mode of attaching hubs to axles. The nature of the improvement consists in attaching a hub to an axle by means of screws which pass through the front band of the hub, the end of said screws fitting in a recess around the arm of the axle and near to the end of it.

New Rotary Engine.

William Taylor, of 93 Front street, Schenectady, N. Y., informs us, by letter, that he has invented a new Rotary Steam Engine, which he believes to be the best ever constructed. He believes steam power is but in its infancy, as regards economy of fuel and safety from explosions. This engine, he states, is made cheap, is propelled with but a small quantity of fuel, and is safe from explosions. Those who have any interest in this class of inventions, would do well to inspect his engine at the place designated above, or address him by letter.

DODGE'S PRINTING PRESS.



This figure is a perspective view of a new printing press, invented by Thomas H. Dodge, of Nashua, New Hampshire. It is the most simple and unique hand press we or any other person have ever seen. A is a strong bed plate of cast-iron, with a standard cast at the one side of it. It has a shaft hung on the standard with a crank handle, C. This shaft is made to vibrate like a pendulum when the press is working; B is the type bed, and a small form of type for printing a card or bill is now secured upon it; H is the platten, it has an inclined back; K is its cloth face. This platten has a spring, H', so that when the said platten is released from the pressure roller, it springs up on its hinge, I, as it is now represented; D is a double vibrating angle on the lower ends of which are two rollers, the one E for pressing on the top of platten, H, to make the impression; G is a vertical ink board; the ink is placed on its inner face.—The ink roller, F, rolls in its open bearings, F', so as to work on the ink board, G.

Supposing a sheet of paper to be placed on the top of the type; by turning the handle, C, inwards, the roller, E, is made to move on the top of the platten H, and to press it down with an equal pressure throughout the stroke. It would not do this, as the roller moves in the arc of a circle, unless the platten were of a wedge-shape, or the roller were made eccentric, but this is done by the shape of the platten.

The motion which brings roller E to make the impression, directs the ink roller, F, against the face of the ink board, G, which supplies it with ink, and then when roller, E, is moved back and the printed card taken out, the inking roller by the back stroke rolls over the face of the type, back and forth, and supplies the form with ink for the next impression. Thus by moving the handle, C, backwards and forwards like the pendulum of a clock, the whole printing operations are performed. This press can be operated with great rapidity, and a web of paper may be fed across the form by having a slot cut in the standard, and the paper fed by some appropriate intermittent motion.

Measures have been taken to secure a patent, and more information may be obtained by letter addressed to the inventor.

Converting Rotary into Reciprocating Rectilenlar Motion.

Henry Baker, of Catskill, N. Y., has taken measures to secure a patent for a new method of converting rotary into reciprocating rectilinear motion. The invention is more particularly designed for the purpose of driving the bed of a printing press, or the bed of any part of a machine to which it is desired to communicate a reciprocating rectilinear motion from a revolving shaft, but it is also applicable in almost any case where the said change of motion is required. The motion is communicated in the first place from the revolving shaft to one or two wheels or pulleys around which an endless belt or chain is placed, the said wheels and belt being so arranged that the belt will move in a direction parallel or nearly so, with the desired reciprocating movement. To the bed or object which is to receive the reciprocating movement, there is attached a ring which lies near to the belt, its inner diameter being about equal to that of the wheels or pulleys on which the belt runs. Two pins slide freely through the periphery of the ring on opposite sides, both pins being parallel with the band, and made to project by springs a short distance into the ring. A stud is attached to the endless band, and is made to project into the ring close within its periphery, at right angles to the pins mentioned. As the band moves, this stud catches one or other of the pins, and propels the ring, and whatever is connected with it. One part of the endless belt or chain, on one side of the wheels, moves in the opposite direction to the other side, alternately, and the sliding pins are so placed, that, when the *stud* spoken of moves in one direction, it catches with one, and when it moves in the other direction it catches with the other, and the pins are drawn back from the ring. At the time the stud on the running belt reaches either of the pulleys, it runs around it on the belt and catches the other pin, and by its reversed movement drives back the ring in the opposite direction to that in which it moved before, and thus by an alternate reversal of the ring by the action of the stud on the pins, there is a continual change of motion from rotary to the reciprocating rectilinear, and there is also an intermittence of the motion, which is very desirable in the working of some machines.

Improvement in the Manufacture of Gas.

S. R. Dickson & Richard Owens, of Schuylkill Haven, Pa., have taken measures to secure a patent for a most valuable improvement in the manufacture of gas for illuminating purposes. The object of the invention is the making of the gas from any hydro-carbon, but especially resin, or such-like hydro-carbons, by submitting the crude materials in a proper vessel, at first to a lower heat than that now imparted to them by the common processes for making gas, and then allowing the gas so made to pass over and through retorts, where it is submitted to a high degree of heat, after which it passes to the coolers. The surplus heat employed for the retorts is used to distil the gas in a cylinder from the crude hydro-carbon. This process produces a greater quantity of good illuminating gas, at one continuous process, than can be done by any of the common methods, consequently there is far less refuse in the form of tar, &c.

Adamantine Sperm Candles.

In our last number we made a few remarks respecting the beautiful Adamantine Candles of George H. Folger, of Nantucket, Mass., and said they were manufactured for him by H. E. Rogers, of South Manchester, Conn. This was an error into which we were led, *unwittingly*, by the names and superscription on the label. Candles were and are manufactured by Mr. Folger, and he is the inventor of the improvements, by which the said candles have been brought to their present unrivalled state of perfection. His factory is at Nantucket, and we beg to state again, that although we have examined and tried many kinds of stearine candles, we have found none so hard and white, and so free from *running* while burning; they are indeed beautiful, and as good as they are handsome.

Mildew on Canvas.

MESSRS. EDITORS—What is mildew, and is there any preparation that will prevent it on sails, awning, &c.? I am informed that cotton duck manufacturers have given up trying to procure any preparation to prevent mildew. I am aware that many awnings are stamped "anti-mildew," and "warranted not to mildew," in New York city, while some are stamped "water-proof." In these quack nostrums I have no faith, from the fact if there were any virtue in them our heavy cotton-duck manufacturers would adopt it. J. H. L.

Newark, N. J., June 8, 1852.

[The mildew which appears on canvas, and which soon riddles it with small holes, and destroys its tenacity, is a kind of minute fungi; this any person can discover by examination. It is no time to apply the remedy when the fungus has made its appearance. We are not acquainted with the virtues of the anti-mildew awnings; but it is certainly an easy matter to render them water-proof. The fishermen of Norway and the western coasts of Europe, dye their sails and nets with oak and other barks, to prevent this mildew. The oak and other barks, which they use for this purpose, contain a great quantity of tannin matter, and this enters into combination with the fibres of the canvas and exerts a preventive influence by the formation of a new compound. It is our opinion that if cotton or linen canvas were steeped in a solution of sumac, or oak or walnut bark—say one pound of Sicily sumac to ten of canvas, for twelve hours, then taken out of that and steeped in a solution of the hydrochloride of zinc or tin, for three hours, that the canvas would never be affected by the *mildew*. The sumac should be boiled, and the canvas should be steeped in it in a large vessel, so as to cover the cloth entirely with the liquor, and not have it too closely packed. The chloride of zinc is made by dissolving zinc in muriatic acid. A large vessel should be used for the acidulous solution; it should not be stronger than 2° by Twaddle's hydrometer. The sulphate of zinc would also answer the same purpose. The cloth should be well washed out of the acid liquor in cold water, and it should be washed lastly in hot water. This process would metalize the canvas; we have never tried it, but from an acquaintance with practical chemistry, and a knowledge of the effects of one substance upon another, we are positive that it would act as a preventive of mildew. The canvas thus treated would assume a greenish yellow color. As we have said before, the chloride of tin will answer as well as the zinc. It is made with tin, and employed in the same as the zinc.

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Courts of Equity.

Any order, long accustomed to wield great power, becomes arrogant, over-bearing, and dogmatic. This is true of all those who exercise unbounded authority, especially when there is a feeling of security from long, or anticipated possession. It makes no matter whether authority is exercised by a despot or a council, the one is just as bad as the other, when they act out the same principles. It is in human nature to become domineering and reckless of consequences, when pride and passion are placed in the one scale against justice and rectitude in the other. A religious order may commence existence with a high and noble standard of morality, and at the same time those principles may be based upon a most excellent stratum of benevolence and meekness, but let that same body exercise its influence for a long time under popular favor, without opposition to keep it humble, and it will —for all the history of the past proves it— become haughty, "heady, and high-minded," it will become the very reverse of what it was when it commenced upon a career of noble effort with the most noble motives. If it be so with religious orders, we can more strongly assert it is so with those bodies devoted to the transaction of political or legal duties.

Last week we said a few words upon the subject of a change in the Judiciary System of the United States, and in another column of this number will be found the form of petition praying for that change, accompanied with some very excellent and temperate remarks upon the subject. They express the opinions of one who is practically acquainted with all the evils of our United States Equity System, and who is distinguished as a professional man and inventor, and who possesses legal, mechanical, and scientific qualities of no ordinary character.

Our U. S. Chancery system—our Courts of Equity—often act upon the very opposite principles for which they were anciently instituted. They were created for the purpose of mitigating the rigors of some just law—tempering mercy with judgment—but some of our U. S. Judges have made decisions of a most arbitrary nature in many particular cases, and instead of mitigating the rigors of common law, they have acted in the most cowardly manner, by being afraid to trust to its justice and clemency; they have made decisions above all law—common and statute. Our Courts of Equity have failed entirely to carry out the principles for which they were instituted; we only refer to cases wherein *facts* have been at issue, not questions of law. If our Courts of Equity acted as sound interpreters of law only, all would be well, but we have frequently equity without law, and this is always dangerous to the public weal. We are alluding to cases of patents.

A patentee believes or supposes another younger patentee has a machine something like his; he applies, by his attorney, to a U. S. Judge for an injunction to restrain the defendant—the younger patentee—from using his machine. The defendant denies the claims of the complainant, and a day is appointed for a special hearing of both parties. But this preliminary to a hearing of both sides may be coupled with the odious issuing of a partial injunction against the defendant, however innocent he may be. In the meantime a number of questions are proposed to a certain number of witnesses on both sides; these are taken down in writing, and are to be used before the Court. The one side, by the most respectable testimony, proves there is no similarity in the two machines, while the other proves there is. The testimony is contradictory; it is a question of facts, and one which our Constitution asserts should be tried by a Jury. Both parties come before the judge, and in one case which took place in Philadelphia last year, we have before us three large volumes of testimony, some of which was presented by the most distinguished men in our country—it was a question of facts, one for a Jury, but the judge pooh-poohed at all the testimony on one side, and ordered a perpetual injunction, with the sequestration of all the defendant's property.

Judges of our Equity Courts often make very startling decisions; thus, for example, a judge recently decided that a certain saw, for tongueing and grooving, embodied the principle of the Woodworth patent, while Woodworth himself, while living, asserted upon oath that saws for this purpose were not claimed by him. It is a sad thing for the administration of justice in our country, when a Judge presumes to judge of both law and facts, and when he takes up a board, and by looking upon it, decides that he knows the principles of a machine better than those who saw it operate—says, they are mistaken, numerous and respectable though he admits them to be, and decides at once, arbitrarily, against all the testimony on one side. These things will effect their own cure. The honest and just agitation has commenced, which will, in the course of time, bring down such arrogant pretences to the platform of common sense, justice, and equity, in deed—not tyranny under its mask.

Light Houses and our Light-House System.

A Board of officers, consisting of Com. Shubrick, U. S. N., Commander Du Pont, Gen. Totten, U. S. Engineers, Lieut. Col. Kearney, Topographical Engineers, Prof. Bache, U. S. Coast Survey, and Lieut. Jenkins, U. S. N., Secretary, was appointed, and received instructions from Hon. Thomas Corwin, Secretary of the Treasury, on the 21st of May, 1851, to examine into and report upon our Light House System. They have done so, and their report states that the Light House establishment of the United States does not compare favorably in economy with those of Great Britain and France. It is admitted in the report that the difference for maintenance per lamp, in a year, is sometimes in favor of those in this country, yet we are a long-shot behind the European *lights* in management, &c. In 1832 Congress passed an act to have two sets of dioptric or lenticular lens apparatus, and one set of reflector apparatus of the most improved kinds imported, set up, and their merits, as compared with apparatus in use, tested by full and satisfactory experiment. The report asserts that no such satisfactory experiments were ever made, except a lens apparatus placed in each of the towers at the highlands of Navesink, and fourteen out of the fifteen reflectors placed in the Boston Light House. A second order of lens, to test the plan of Mr. Isherwood, of discriminating one light from another, and the distance of a vessel from a light, was placed, by order of Congress, at Sankaty-head, Nantucket, and lights were placed by the Topographical Burea, on Brandywine shoal, Carysford-reef, and Sand-key. This is all that has been done to keep up light-house improvements in the United States with those of France and Great Britain. The report makes out the present light-house system of the United States to be miserable and inefficient. The floating lights are set down as comparatively useless for want of efficient lamps and parabolic reflectors. The modern light-house towers are asserted to be inferior in point of materials and workmanship to the older ones,—Sandy Hook light-house, built in 1762, is better than the latest edition of a light-house tower. This is certainly disgraceful; it is plainly stated that "there is not in useful effect a single first-class light on the coasts of the United States." The conclusion to which the Report comes is, that "the present Light-house System of the United States requires a thorough organization to insure to the service efficiency and economy; therefore it is recommended that there should be a Light-house Board organized, composed of scientific civilians, and army and navy officers, to be charged by law with the entire management of the light-house establishment of our country."

When we consider that the United States of America is the second greatest naval power in the world, and that in a very few years, if we progress as we have done, it will be the greatest, it is a shame that we have such a miserably managed light-house system. It is asserted, in the Report, that Scotland stands at the head of all nations for her light-house management; this is due no doubt to those distinguished men, Sir David Brewster and Allan Stephenson, the eminent engineer. There is nothing to hinder the United States from having as good a light-house system as any other nation; she should have the best, and if things were managed in Washington as they should be, we would have the best.

While we have said this much, it would be wrong not to mention that S. Pleasonton, the Fifth Auditor, had made a reply: he asserts that the Report of the Board is full of errors. He indeed makes out our light-house system to be conducted more economically, so far as dollars and cents are concerned, but that is no evidence of error in the Report of the Board,—a penny candle is cheaper than a huge argand lamp, but what proof is that of its efficiency? The Report of the Auditor presents no evidence to prove that we have lights to compare with those of other nations, indeed, we know when he speaks of the good lights about New York and the Hudson river, he is wrong: they are miserable as compared with the Toscar, the Skerrevore, and other lights on the coasts of Ireland and Britain. Now we want better lights on our coast, not your penny-wise and pound-foolish kind, but those of the most improved construction, if they do cost more than those now employed.

Sperm oil is the kind in use for our light-houses; colza oil is employed in the French and English light-houses; it possesses the advantage of remaining fluid at a temperature below that which thickens whale oil; it does not congeal above 21°; it is said to be better and cheaper than spermaceti oil; but the great advantage which it possesses over the other oils is, that it does not char the wick so readily; it will also burn in the Fresnal lamp and the single argand burner, with a thick wick, during seventeen hours, without trimming the wick. Spermaceti oil is cheaper here than the colza; still, we have no doubt but some vegetable oils, such as rape, might prove to be as good, and certainly much cheaper than the sperm. An objection to the Fresnal Light, which is recommended by the Board, is, it requires more attendance, and thereby entails more expense. Capt. Canfield, of the Topographical Engineers, who has erected a light on a shoal in the Straits of Mackinaw, has made a valuable improvement to do away with the constant attendance of a watchman. The lamp has only a single light, and if this were to go out by accident, all would be total darkness; a constant watchman is usually required to prevent such a result; the improvement is the attachment of a bell which will commence ringing whenever the light goes out. It works by the expansion and contraction of a copper tube, when heated and cooled. The arrangement has been found to answer perfectly.

Profits of Patents.

In our last number there was a small extract about the profits derived from the Woodworth Patent. It is well known to our readers that an extension of this patent has been prayed for, and arguments have been set forth by C. M. Keller in favor of the extension. A pamphlet has been published, and is now before us, which presents arguments against the extension. It is asserted from the facts set forth by the counsel for the extension, that the gross earnings of the patent amount to $15,000,000 per annum. Mr. Woodworth sold the extended term of the patent for $100,000, as was stated by Senator Dawson. In 1842, John Gibson, of Albany, purchased a right for $4,600, seven months before the first extension was granted; he had run five machines for the ten previous years. There are 1000 Woodworth machines in the United States; each dresses 10,000 feet of boards per day. The owners of the patent get one dollar of tribute per thousand feet, which amounts to $10,000 of clear profits per day. The price paid to the licencees for planing a thousand feet of boards is $5: after paying $1 they have $4 for all expenses. This pamphlet states that the whole cost of planing boards is only $2, therefore the clear profits of each machine is $30 per day. The pamphlet also states that the machine of George W. Beardslee, which was illustrated in our columns, can plane 1000 feet of boards, in the best possible manner, for one dollar; therefore, as the Woodworth machine is more expensive, is a tax upon the community, it concludes that it is wrong to bolster up an old and inferior invention. The logic of it is this: that the support given to the Woodworth machine retards improvements, and taxes the community by a law for an invention inferior to another one. This is a critical point in judging upon such matters; we are afraid that it is often overlooked by our courts. It is the fortune of war—no, not war, of progress—that what was a good invention some years ago, is not a good one to-day; at least it has been superseded by a superior improvement. Unless free scope is allowed to genius in the use of improved machines, we cannot expect to advance in mechanical improvements. The very spirit of patent laws "is the promotion of the useful arts." We have seen many paragraphs respecting the profits of the Woodworth patent, and have seen no contradictions of the same; there may, however, be some room for corrections.

Arresting Conflagrations in Cities.

In the Merchants' Magazine of this month R. Hare, of Philadelphia, proposes a system for arresting conflagrations. His project is to employ locomotive fire engines, with the addition of powerful pumps and high wheels for running on the pavements. He also recommends that a steamboat should be provided with powerful apparatas for throwing water, and propelling to any practicable distance. He also suggests that water reservoirs should be placed on the tops of buildings for keeping roofs wet in case of fire. A stationary engine, he believes, might operate on fires throughout the whole ramification of hydrant pipes.

None of these plans are new—but if good they are none the worse for that. In London there is a fire engine steamboat; it belongs to the fire brigade, but is of very little use, and has only been once used in a number of years. A steam fire engine by Ericsson is illustrated on page 347 of Ewbank's Hydraulics. Stationary engines have been employed in some of the European cities, and many of our houses have fire tanks on their roofs; French's Hotel that was recently burned in our city had one. Steam fire engines would be too slow in being brought to operate on a fire; but they would be very effective when brought to bear. We have no doubt but one could be made to throw a stream of four inches in diameter 100 feet high; this would soon put out a fire.—The expense of steam fire engines would, however, be very great; therefore we advocate more fire-proof houses, and an efficient hand fire-engine department in preference to other plans.

We have been informed that the engine No. 5, which was so successful in Brooklyn two weeks ago, having beat all the rest, was not made in this city, but by Mr. Jeffers, of Pawtucket, R. I., whose engines have been frequently noticed in the Scientific American.

Water for Brooklyn.

On Tuesday evening, the 8th inst., Alderman Marvin, as Chairman of the Committee on Water, made a report to the Common Council on supplyieg the city with water. It stated that the surveys had been completed by Mr. McAlpine, the State Engineer, and his Report was presented. The Committee were of opinion that the plan contemplated in the Report was the best that had been presented. This plan is to supply Brooklyn with water collected from a number of streams on Long Island, which are to be conducted to a large Reservoir, and pumped by steam power to the highest level in Brooklyn. It asserts that provision should be made for a supply of 250,000 inhabitants, or 10,000,000 of gallons per day. The waters which Engineer McAlpine has examined have been analyzed by Dr. Chilton, of New York city, and have proven to be of extraordinary purity—more so than the Croton.

The Common Council of Brooklyn have, at the recommendation of Mr. McAlpine, authorized suitable gauges to be placed in the several streams referred to in the Report, and the employment of a competent person to make a daily examination of the quantity of water furnished by each, and to keep a record of it.

This is a prudent measure; Brooklyn will yet have a good supply of water, but it will always be more expensive than the Croton which supplies New York.

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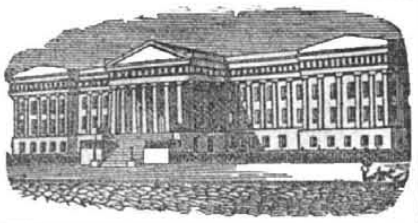

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 8, 1852.

RETORTS FOR CHEMICAL FURNACES—By John Akril, of Williamsburgh, N. Y,: I disclaim the processes to which these retorts are applicable, and all chemical compounds, and mode of working the same, which are described; and I disclaim all the apparatus shown, as follows: I claim the retorts formed by the arch and bed, with the sides and perforated with the cross flues below the bed and above the arch of each retort, said retorts being formed and operated as set forth, and being used for any purpose for which they may be available.

PLATE AND WINDOW GLASS—By Terence Clark, of Pittsburg, Pa.: I claim, first, the use of hollow chilled iron rollers in the manufacture of window and plate glass, in connection with the mode of heating them with charcoal or other combustible placed inside.

Second, the combination of the grooves with the strips and guides, and the set screws, for the purpose of regulating the width and thickness of the sheet of glass.

Third, the use of trucks for carrying off the sheets of glass as they pass from the rollers as aforesaid

Fourth, the combination and arrangement of the gates, flues, and furnace, in the construction of the polishing oven.

OAKUM—By J. A. & Geo. Cormack, of New York City: We claim the treatment of junk by steeping or rinsing it in acidulous liquor, as described, for the purpose set forth.

COW CATCHERS—By Cook Darling, of Utica, N. Y.:—I claim the wheel and the guard, connected and arranged substantially as described, and for the purpose described.

COP SPINNING FRAMES—By Geo. H. Dodge of Attleborough, Mass.: I claim the toothed quadrant, the pinion and its shaft, in combination with the scroll cams, their chain, tubular shaft, and the clutch contrivance, made with the spring click, and one single detent or opening, the whole being applied to the scroll shaft and spur gear, and made to operate substantially in the manner and for the purpose stated.

I also claim the ratchet wheel, the arm, and retaining pawl or click, or any mechanical equivalent therefor, in combination with the balance-wheel apparatus (viz., the arm, the fly-wheel, its shaft and pinion), and the spur gear, having a positive motion as described, the whole being for the purpose as specified.

And in combination with the scroll shaft and its mechanism, for effecting the upward and downward movement of the ring rail, I claim the mechanism for effecting the change of the downward to the upward motion of the said rail, in an easy manner, and so as to prevent injurious strain, when the spring click strikes into the recess of the clutch flanch, the said mechanism consisting of the arm, roll, spring, tube, rod, cam, curved lever, and spring, or their mechanical equivalents, combined and operating together. substantially as described.

I also claim the improvement of so applying or combining the thread guide, or the guide bar or rail, to or with the ring rail and the frame. that the said guide or guide bar shall be movable, or made to move upwards and downwards, while the ring rail so moves, and this with a movement either equal to or in accordance with that of the ring rail, or a variable, as circumstances may require, the same being for the purpose as specified.

And in combination with the scroll, its chain, and connections with the ring rail, I claim a compensature mechanism, or apparatus, for regulating the action of the copping rail or rails on the said scroll, according to the leverage, or, in other words, for providing a compensation for the difference of leverage produced by the swell, as described, the mechanism employed by me, and the combination of which I also claim, consisting of the two cams, the pulleys, the chain, and weight, as applied together and to the frame, and operating substantially as specified.

And I claim the bent arm and its projection, or other equivalent contrivance, in combination with the driving belt, shifting lever, or contrivance, the same being for the purpose set forth.

And I also claim my improvement in the construction of the thread guide, the same consisting in making the opening of it straight, on its rear side, substantially as shown, the same being for the purpose explained.

And I also claim my improved or new combination of mechanism, by which a sudden or very quick rise of the copping rail is effected, in order to finish each upward movement, and this so as to wind as little yarn as possible, at the nose or upper end of each conic layer composing the cop, the said combination consisting of the arm upon the scroll shaft, the levers, the arm, and the rollers, as applied and operated together, essentially as specified.

SMOKE AND SPARK DEFLECTOR—By Albert Eames, of Springfield, Mass.: I do not wish to limit myself to the special form or position of the deflecting tubes, so long as the same end is attained by analogous means.

I claim the method of directing the discharge of smoke and sparks, or either, from the chimney of a locomotive, by combining therewith deflectors, substantially as described, the aperture thereof being governed by a valve or shutter, substantially as specified.

MACHINERY FOR MAKING SPOONS, FORKS, ETC.—By Alfred Krupp, of Essen, Prussia (assignor to Thos. Prosser, of New York City; patented in England Aug. 26, 1846.: I claim the employment, for trimming the edges and giving the ornaments to the blanks, of a pair of rollers, each of which is furnished with a cutting edge and a device engraved within the same, and a space outside of said cutters, for the reception of the waste, said rollers being so worked and applied to each other, that the cutting edges of the one comes in contact with and cuts against the cutting edges of the other.

I do not claim simply a movable die, but what I do claim, is a movable die located within the pattern dies, so that spoons or forks, having various crests, names or initials thereon, may be made by the same contour or device and edge pattern.

AXES—By John Orelup, of Ballston Spa, N. Y. (assignor to Isaiah Blood, A. J. Goffe, and G. R. Thomas): I claim the method of manufacturing axe poles by a process of which the following are its successive steps, in combination with others, as they are applied to the metal bar, when heated and prepared for manufacture, viz.:

First, Spreading the iron bar at four points on its edges by strokes of a peculiar tool made for the purpose.

Second, forming half eyes across the bar at spaces equi-distant from its centre, by strokes of a narrow and round-edged hammer.

Third, finishing the half eyes and making them equal and similar on a swaging tool.

Fourth, cutting the bar partly through across its centre, and doubling together the halves of the bar, so that the half eyes shall unite in correspondence with each other, and form the eye of the axe, completing the whole, ready for welding the two halves of the pole together, substantially as the process is set forth.

REFLECTOR LAMPS.—By J. H. Pease, of Reading, Pa.: I claim a reflector lamp, constructed substantially as set forth, with a case containing a cooling liquid for the protection of the reflector from injury, as described.

WHEEL CULTIVATORS—By F. P. Root, of Sweden N. Y.: I am aware that there are other modes of raising and lowering the frame containing the teeth of cultivators in use. particularly that patented to D. B. Rogers, Jan. 16, 1849, which consists mainly of a combination of a crank axletree, extending across the centre of the frame, on the ends or cranks whereof are mounted the sustaining wheels, while I acknowledge the similarity of the lifting action of the cranks of the axletree to that of the pivoted segment levers used by me, and which I disclaim, yet I am not aware that Mr Rogers is entitled to claim all means for effecting the same result, and I conceive that my improvements differ in material points from his, and which form the object of my claims, as follows:

Mounting the carriage wheels upon axles, only when said axles are made to project from pivotted segment-shaped levers at each side of the frame, in the manner and for the purpose specified,

SEED PLANTERS—By J. P. Ross, of Lewisburgh, Pa.: I claim, first, the seeding apparatus, constructed substantially in the manner and for the purposes set forth, consisting of the cup and receivers, the plate, gate, and their attachments.

I also claim the mode of putting the cups into motion and stopping them, by shifting the pitman, as described, on to or from the eccentric by the windlas, in the manner set forth.

I also claim raising and holding the teeth by the employment of the apparatus for turning and holding the windlas, consisting of a crank and bevel wheels, as described, so that one man can easily raise the teeth to any desired height, and to a much greater range than can be done conveniently by levers, or similar devices, and attach it in that position by the revolving clutch which meets, when at the proper height, with the crank which it fastens.

HARVESTERS—By G H. Rugg, of South Ottawa, Ill.: I claim the curved fingures, in combination with the rivets, projections below the sickle, by which means the sickle is prevented from being clogged or bound, substantially as described.

SEED PLANTERS—By B. D. Sanders, of Holliday's Cove, Va.: I claim the construction of the serpentine driving cam, the cam being formed of two parts and placed on the axle, one part of the cam being fixed firmly to the axle, and the other moving freely thereon, and secured at the desired point to the axle by a set screw, each part of the cam being formed of a collar, having a zig zag or serpentine thread or projection upon it, the friction roller or bulb, at the lower end of the lever, fitting between the threads or projections which act against it, as the cam revolves, and give a reciprocating motion to the shove rod, substantially as described.

(An engraving of the above invention will be published in the Scientific American next week.)

HAY RAKES—By Zenas Sanders, of West Windsor, Vt.: I claim the construction of the axle and rake head, with hinges connecting it with the platform, in combination with the draft strap, to raise and depress the rake teeth, in the manner and for the purpose set forth.

SOAP BOILERS—By J. R. St. John, of New York City; patented in England June 6, 1851: Having thus described the construction and operation of my apparatus for heating, boiling, and mixing by steam, I desire it to be understood that I do not claim to be the original inventor of the application of steam to heating, boiling, and mixing; but I claim the combination of the steam jacket, tubes, and agitating rods, for transmitting and equally diffusing heat through soaps and other similar substances, where it is difficult to keep up a uniform heat throughout the mass, substantially in the manner set forth.

[Mr. St. John's English claims, we believe, were more extensive than the above.]

RAT TRAP—By John J. Vedder, of Schenectady, N. Y.: I claim the employment of the pulley, cords, and inclined tilting passage, the whole being arranged as described, and operating in combination with the tooth, having a tilting door arranged on the top of the same, and a guard placed round the door, in the manner and for the purpose specified.

GREASE COCKS—By R. M. Wade, of Wadesville, Va.: I claim the inclined discharge passage, of varying area, constructed, arranged, and operating with respect to and in combination with the hollow cylinder and its aperture, in the manner and for the purpose set forth.

DESIGN.

PORTABLE GRATE—By David Thomson (assignor to the New Market Iron Foundry), of Boston, Mass.

NOTE—We call especial attention to the singular information announced in the preamble to Mr. Root's claim on Cultivators. The argument is forcible, the language unmistakable, and is certainly very creditable to the accommodating spirit of the Examiner. Mr. Rogers will please to consider his claim as not embracing "all means for effecting the same result."

Valley of the Amazon.

About a twelve month since, Lieutenant Herndon, of the United States Navy, was deputed by the Department to make an exploration of the great river Amazon, from its sources in the mountains of Peru to its junction with the Atlantic at Para, Brazil. This duty has since been performed, Lieut. H. having reached Para, and joined there the U. S. brig Dolphin. He made the voyage down the Amazon in a bark canoe and almost entirely alone. A large collection of specimens were gathered during the exploration.

For the Scientific American.

The Reformation of the United States Judiciary System.

Virgiania and Pennsylvania have just emerged from one of the relics of despotism, in the judicial branch of their governments; that is, from the appointment of judges for life or during good behavior; and having adopted the Republican or Democratic doctrine, of electing the judges by the people for a limited number of years, it behooves the people to remove the same dangerous feature from the Federal as well as the State Government.

Judges for life, like all other men similarly situated, such as monarchs, emperors, and individuals in whom power for life is entrusted, soon become usurpers and despots, in the consciousness that none but a very grievous overt act, amounting to misdemeanor, could result in a successful impeachment and removal from office. The consequence is, that the province of the jury-box is trodden under foot: important questions of fact are decided by a "single man" clothed with the legal phrase of a "court;" decided too often on vainly assumed hypothetical fancies, amounting to speculation—possessing no solid practical capacity either for usefulness or for reliance as a true basis; and when the decree of the one-man goes forth, and injunctions issue, without security to indemnify the parties, in case they ultimately show them to have been wrongfully issued,—they spread a desolation through the business and property of the citizens of the States, worse than the pall of death, for there is no hope of salvation or redress for the injury done by the one-man called the court, and no opportunity to recover themselves in the case before a jury of their country, ere total ruin has been their lot.

Attempts have been made, under the Constitution, to prevent the Federal judge from assuming such omniscient and oppressive powers; but all seems to be of no avail against the natural tendency of man's nature, when intrusted with too much power, to become exclusive or despotic, and oppress his fellow man, under the assumed mask of superior discernment or great learning in sciences or arts, or other subject matter to which the question of fact at issue in the case belongs; the truth being, that nine times in ten the power, and a real ignorance of the matter, begets an assumption of knowledge; because the Chancellor or Judge, having no practical experience in the new art or matter of fact, cannot see how much he really knows nothing about, and hence, in the absence of time, intense study, opportunity, and capacity to learn, he assumes that he knows everything; for he cannot see the extent of the field of knowledge both explored and unexplored, that is before him. This is all quite natural; but it is repugnant to the spirit of our government and oppressive to the people.

The Act of 1789, section 16, "that suits in equity shall not be sustained in either of the Courts of the United States, in any case where plain, adequate, and complete remedy may be had at law," is left *discretionary* with the Judge, and therefore becomes a nullity on the statute book.

The Act of February 13, 1807, which declares—"nor shall an injunction be issued by a district judge in any case where a party has had a reasonable time to apply to the Circuit Court for the writ," becomes also a nullity on the statute book, as it is left *discretionary* with the district judge to say what constitutes a reasonable time; and where parties complainant have waited a whole year, when the district judge is known to be predisposed on general impressions and in general temperament in their favor, finally, in the absence of the circuit judge, who is known to have no such temperament, the district judge is moved for interlocutory injunctions, and they are granted, no matter how greatly in error or ignorance the judge may be,—they are granted *without security*, and the citizens of the States—and all their freehold and personal property, and contracts inseparably connected with the subject matter, if it be a machine or otherwise, are laid prostrate in the dust before this Federal power, and they have no redress, although they may be in the right, and no fate before them other than overwhelming ruin.

Before this Republic was established, it was a maxim that the Crown (consisting of one man) could do no wrong. Now it is, that the Court (consisting of one man) can do no wrong. The principle of the one-man power is the same in both, disguise it as we may, whether in the word Crown or in the word Court. Our ancestors did not believe the former then; we do not, and ought not to, believe the latter now.

Already the voice of New York, in a resolution to Congress, has gone up protesting against and denouncing such oppression. The Key Stone State, Pennsylvania, ever true to a Democratic Government, has declared that her Judges shall be elected for a limited period by the people, and put upon her statute book the law of May 6, 1844, declaring "No injunctions shall be issued by any court or judge, until the party applying for the same shall have given bond, with sufficient sureties to be approved by said court or judge, conditional to indemnify the other party for all damages that may be sustained by reason of such injunction." And it is quite time that similar features had been engrafted upon the Judiciary System of the United States.

The many wrongs heretofore inflicted, by Federal Judges assuming too large a jurisdiction and knowledge over facts, have awakened the people to a full sense of the insecurity of their situation; for no man knows where such doctrines and decrees will fall next, and blast all his credit and prospects, without a trial by Jury, and without security, or opportunity for redress—and have compelled many of the citizens to raise their voice, in the following petition to Congress, in which we trust every State in the Union will join, as it is purely republican, in accordance with the nature of our Government, and already impressed upon the statute book of Pennsylvania and several other States:

"TO THE HON., THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES IN CONGRESS ASSEMBLED:—

The Petition of the undersigned, Citizens of the State of ———, respectfully represent to your Honorable Bodies, the necessity of a change in the Judiciary System of the United States, respecting the appointment of Judges, and the power they have assumed over both law and facts, in granting injunctions without trial by Jury, and without adequate security to the party enjoined, all of which is contrary to the spirit and true character of our government, is of despotic origin, contrary to the spirit of the government of this State, destructive of business security, and oppressive to the citizens,—

And pray Congress to propose an amendment to the Constitution, providing that the Judges of the United States Courts shall be elected by the people, for a limited number of years.

Also to pass a law prohibiting the issue of a writ of injunction, unless the complainant shall first give security to indemnify the defendant for all loss and damage; and providing that the defendant may stay or raise the injunction on giving like security. And that all issues of fact both in equity and at law shall be tried by Jury."

REPUBLICAN JUSTICE.

The Country for the Consumptive.

A correspondent of the Philadelphia Ledger, a medical man, writing from Rock Harbor, Lake Superior, says it is the country for those laboring under consumption, who are not too far gone with the disease. The air is so pure and dry, that it imparts elasticity to the spirits, and infuses new vigor in the system. He has had the charge of a small community of 100 souls, not one, during the past winter, has had a cough. From November to April not a drop of rain had fallen, and although the temperature is much lower than in the Atlantic States, the people do not suffer so much from the cold as they do where the climate is more moist and the temperature higher.

The "N. H. Statesman" says it is understood that the daughter of the late Benjamin Thompson, (Count Rumford) who has been residing for several years in the Rolfe Mansion, now her property, on the intervale near the lower end of Main street, in Concord, N. H., is proposing to re-cross the Atlantic.—The Countess," as she is called, is more than 70 years of age; and has several times encountered the perils of the ocean.

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TO CORRESPONDENTS.

E. W. C., of N. J.—We think the patent for making glass has not issued yet, as we cannot find its publication in the English journals.

O. J. H., of N. Y.—The model of your planer came duly to hand, and has been examined; there is no chance for a patent on it. Such a machine was exhibited at the Fair of the American Institute, by Emmons, and we have since learned that it has passed out of use.

G. B. C., of Ohio—You could not obtain a patent for placing a wheel at the bow of the boat, to lessen resistance, which always increases according to the square of the velocity, by an unalterable law. Your plan would do no good.

W. A. G., of Me.—There is nothing new or patentable in your method of converting parallel into rotary motion. We have been familiar with it for a long time.

J. M., of Ohio—The mortising machine advertised in the Scientific American is suited to joiners' work, but not sufficiently heavy for hubs.

S. A. C., of Md.—We find an engraving of Fellow's grate bars in the Eureka, a publication formerly conducted by J. P. Pirsson, of this city; the improvement consists in making the ars with two parallel grooves in the top surface of the bar. The grooves are made for the purpose of holding a quantity of ashes or other non-conducting substance, which preserves the bar from the action of the heat. they have been much used, and we believe answer a good purpose.

P. S. R., of Ala.—We have examined the claim mentioned in yours of the 5th inst, and do not find that it covers any such point as it is represented to you. Agents of pattentees sometimes exaggerate claims, the object being to silence any attempts at improvements which might operate against their interests.

R. R. of Mass.—Enquires if any power could be obtained by winding up a spring similar to those employed in clocks and watches. Yes, as much as it took to wind it up and no more. Is it possible for a machine to give out more power than is applied to it—if so, explain how it is done.

W. T., of Pa.—Oscillating engines are employed in the Albatross, and work well, they were made in Philadelphia by Sutton & Co.

T. E., of Ohio.—The incrustation may be removed by sal-ammoniac, it is a deposit of carbonate of lime, which combining with sal ammoniac becomes soluble and may then be washed off.

O. P. E., of Ala.—The number of pint cells of Smee's battery requisite to produce an electric light is six. The intensity bears no comparison to other lights, while a less number of cells would not produce combustion of the charcoal points. Where intensity is desired, Grove's arrangement is used.

A. G., of Phila.—Ryder's patent forge is an English invention, and is designed to do away with the great labor attending the forging of mule, throstle, and roving spindles, studs, shafts, etc, for cotton and other machinery.

A. R., of N. Y.—The memorial you refer to was presented by one Thos. G. Clinton, asking Congress to require the reasons why Examiner Renwick granted his brother a patent for a railroad chair, in view of a rejected application made by Wm. Wheeler some two years previous. The committee decided the inventions to be dissimilar, and dismissed the case This Clinton is the same man who had a slight brush with Commissioner Burke some years since, without success; probably the officials are too much for him in point of influence.

J. I., of S. C.—Your statement is founded in error, owing, no doubt, to the want of experience in this particular branch. We recommend to your study Mahan's Civil Engineering, it will aid you materially, price $3.

T. N. & T., of Ohio.—We shall be able to fill your order soon.

J. G. M., of Mass.—Will please to give us his his full address, that we may be able to correspond with him about the volumes.

B. A. J, of Tenn.—It would be quite wrong to make use of such influences. The tendency is to destroy the charaeter and utility of the office. The Patent Office is a very important department, and should be as free from political influence as possible. Your agent, as well as Senator Jones, can insist upon a fair and candid decision in the case, and we advise you to press it through, provided you are not pleased with the references.

A. M. S., of Pa.—Your subscription will not expire till No. 14, next volume. Hunt's Merchants' Magazine is published at 142 Fulton street, a few doors from our office.

H. D. P., of Me.- There is no remedy for you now. It would have been better for you to have employed some respectable patent agent at the onset.

R. C. A., of Ill.—We expected to have heard from you in regard to the mill before this time. The opposite party are anxious to determine what you intend to do, and make appplication for a patent unless some terms can be effected.

D. Y., of Mich.—A patent was issued to Wylly's Avery in 1849, for a vegetable cutter, which covers all the points claimed by you.

H. A., of R. J.—Mr. Pope claims giving the harness hames a concave form for the purpose of enabling them to be fittted with much greater accuracy to the roll upon the collar, and thereby securing them against displacement.

[illegible] Pa.—We shall attend to an examination [illegible]on as the proper documents reach [illegible]me we refer you to Vol. 6, Sci. Am.

H. & L. D. B., of Pa.—We should regard the contrivance as the same, and not affecting the claims as they stand issued. A mere change in form is not patentable.

J. McC., of N. Y.—You had better send us a model or sketch of your improvement, that we may judge more correctly of its novelty. We do not wish to advise you incorrectly, and would take occasion to state that so many patents have already been granted for threshing machines, that it is not easy to decide positively.

C. P. L., of Ga.—We shall push your business forward as fast as possible.

S. J M., of Mass.—A fee is now required by the Patent Office for recording assignments. They must be recorded within three months.

B. F., of Ct.—The glazing of pottery is effected by using a glass which is fusible at a lower temperature than the pottery itself. The pattern is imprinted on unsized paper, and closely pressed on the unglazed surface; the paper is carbonized, leaving the coloring matter on the earthenware.

R. E. C., of Ind.—You had better send us a model of your invention for our examination. We think you will find this course best.

W. H. F., of E. Tenn.—The "American House Carpenter" you can buy here for about $3; we think the work will please you. Respecting the machine, we advise you to address J. H. Lester, 92 Fulton street, this city, as we have not the information you require.

H. H., of Ct.—We think your invention in the spinning frame new and patentable; it is different from either invention patented by W. Rouse or G. H. Dodge. You must experiment with it to determine its practical value.

S. M., of Ky.—We do not think it possible for you to gain anything by the arrangement. The friction is very great, and the machine too complex to operate well. By more study, and with the aid of experiment you can overcome obstacles and improve your machine.

R. H., of Mass.—The best way for you to do is to cut through the hill; it won't cost much. Lead pipe will answer best for your purpose, as the stream will always be running through it.

Money received on account of Patent Office business or the week ending June 12:

J. T., of N. Y., $20; H. L. F., of Ill., $30; T. H. D., of N. H., $15; C. A. M., of Mich., $30; H. P. O., of Ct., $20; P. M. of N. Y., $40; C. W B., of Mass., $30; J. M. T., of N. Y., $10; R. H. T., of S. C., $20; A. H., of Ga., $50; J. W. H., of N. Y., $40; B. & R., of Mass., $26; P. & C., of N. Y., $32; H. O. E., of N. Y., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending June 12:

S. & K., of Mass.; W. P., of Mo.. D. & O., of Pa.; J. T., of N. Y.; E. C. H., of O.; H. P. O., of Ct.; L. L., of Mass.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

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In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

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Of Volume 6, all; price in sheets, $2; bound, $2,75

Of Vol. 7, all back numbers at subscription price.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying.

Patent Laws, and Guide to Inventors.

We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 12 1-2 cts. per copy.

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PLANING MACHINE—P. EMMON'S newly invented machine for Planing, Tongueing, and Grooving Boards and Floor Plank, is now complete, and can be seen at No. 37 Allen st. It is considered by the best of judgess, uperior to all others in use. Call and examine. 1*

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

MARYLAND INSTITUTE FAIR—The Board of Managers of this Institute will hold the Fifth Annual Exhibition in the Grand Saloon of the Institute Building, in the city of Baltimore, commencing on the 4th day of October next. The great facility thus afforded for a splendid display of American Manufactures, they hope, will be a sufficient inducement for the Manufacturers, Mechanics, Artists, Inventors, and others throughout the United States, to contribute such specimens of their industry, skill, and ingenuity, as shall be alike honorable and creditable to the mechanical genius and refined taste of the country. The Hall will be open for the reception of goods on Monday the 27th Sept. next, from which time to Thursday night, Sept. 30, articles intended for competition and premium must be deposited. The balance of the week will be devoted to the reception of articles intended for exhibition only, free of charge. After which time depositors will be subject to a charge of 50 cents to $1. On Monday, Oct. 4, at 7 o'clock, P. M., the Exhibition will be open for the reception of visitors. Circulars containing the regulations and arrangements established by the Standing Committee on Exhibitions, can be had by addressing (post-paid) JOHN S. SELBY, Actuary of the Maryland Institute, by whom any information required will be promptly given. 39 7

PATENT ALARM WHISTLE.—Indicators for speaking pipes, for the use of hotels, steamships, factories, store-houses, private dwellings, etc. etc. This instrument is intended to supersede the use of the bell, being more simple in its arrangement, more effective in its operation, and much less liable to get out of order, being directly connected with the speaking pipe, it requires no lengthy wires in its use, which are continually getting out of order or breaking. There have been several hundreds of them fitted up in this city and vicinity with the greatest success. They can be attached to pipes, which are already fitted up without domage to buildings, and for much less than the cost of a bell, and warranted to operate. The public are invited to call and examine them at the factory of the patentees.

WOOLCCCKS & OSTRANDER.
57 Ann street, New York.
State and County Rights for sale. 40 13

IRON FOUNDERS MATERIALS—viz.: good American Pig Iron—grey, mottled and white; No. 1 Scotch Pig Iron, of favorite brands. Pulverized Sea Coal, Anthracite Charcoal, Soapstone, and Black Lead Facings. English and Scotch patent Fire Bricks—plain, arch, and circular, for cupolas. Fire Sand and Fire Clay. Iron and brass moulding sand; Core sand and flour; always on hand and for sale by G. O ROBERTSON, 135 Water street (corner of Pine), N. Y. 40 6*

DRAUGHT BOARDS, PATENT—23 by 29 inches. Ready sales their best recommendation. Cheapest instruments in use. Complete for $10. Sent by Express. Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 40 tf

WANTED—By a steady young man, a situation where he can get steady work and reasonable wages. Address (post-paid) "E. G.," East Greenwich, R. I. 1*

IMPORTANT TO IRON FOUNDRIES—The Galvanic Alloy Manufacturing Co., Nos. 401, 403, and 405 Cherry st., N. Y., will furnish the Aerostatic Fan Blower at $55, and with patent fitting at $65, that produce sufficient blast for the largest cupola, melting 3 and 4 tons of iron per hour; taking less than one half the power of those now in use, that cost from $80 to $100. The wings, being only about an inch in width (planned upon entirely new and mathematical principles), produce double the blast with half the power of other blowers. Warranted in all cases, or they may be returned and the money refunded. 38 eowtf.

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 lbs., price $600. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 39 26*

TO CARPENTERS AND DEALERS IN PATENT RIGHTS—The whole right and title to the Patent Blind and Shutter Fastener, which was illustrated in No. 37 Vol. 7 of the Scientific American, will be sold cheap to a cash customer, or the owner of the patent will sell single States (not in smaller quantities) if desired. The invention is a good one; the claims are broad, and it is not an infringement of any existing patent, as decided by parties who have investigated the matter thoroughly. For particulars concerning the purchase of rights, etc., address "DESAIX," box 773, P. O., New York City. 383*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
At this Office.

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.

QUARTERMAN & SON, 114 John st.,
23tf Painters and Chemists.

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y., where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

PORTER'S PATENT GRADUATING VALVE FORGE TUYERE—Illustrated in this paper Sept. 6, 1851, gives a sure, quick, and clean heat, and is warranted to save full 25 cts. per day to each fire. Two sizes manufactured. Price $6 to $8. For sale, wholesale and retail, at No. 9 Gold st. W. J. & J. H. BURNETT. 38 4*

NEWELL'S PARAUTOPTIC BANK LOCK—These Locks, which have been tested by the most skillful mechanics of Europe and this country, still remain invulnerable to their combined efforts, proving its superiority over all others. For sale by DAY & NEWELL, 589 Broadway, N. Y. 38 3*

CHARLES F. MANN, FULTON IRON WORKS, Below the Troy and Greenbush Railroad Depot, Troy, N. Y.—The subscriber builds Steam Engines and Boilers of various patterns and sizes, from three horse power upward; also, his Portable Steam Engine and Boiler combined, occupying little space, economical in fuel, safe, and easily managed; Double Action Lift and Force Pumps; Fixtures and Apparatus for Steam or Water; Tools for Machine Shops; Shafting and Pulleys for Factories. Brass Castings and Machinery made to order at short notice. Steam engines furnished cheaper than can be had elsewhere, of the same quality. 30tf

JOHN W. GRIFFITHS—Ship Builder and Marine Architect, 658 Fourth st., N. Y., furnishes models and draughts of all description of vessels, with the computation of stability, capacity, displacement, and necessary amount of impulsion. Propelling power located and proportionably adapted to the form of the vessel. whether sailing or steaming. Mr. G. also superintends the construction of vessels, and may be consulted upon all subjects pertaining to the various departments of the science or practice of ship building. Draughts forwarded by letter to all parts of the world, and to any desired scale; all letters must be post-paid. 27 18*

1852 TO 1856.—WOODWORTH'S PATENT Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
27tf P. A. LEONARD.

TO BUILDERS AND WORKERS IN Wood—We are selling a very simple durable, and effective Mortising Machine for $20, boxed ready for shipment. We have sold a large number within the last year, and they have given satisfaction. We furnish three chisels and a lever to operate them. Address MUNN & CO.

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

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SCIENTIFIC MUSEUM.

Medical Science.

SULPHATE OF BEBEERINE.—Dr. H. S. Patterson, of the Pennsylvania Medical College, directs the attention of physicians to the use of *sulphate* of *bebeerine* as a substitute for the sulphate of quinia.

It is obtained from the Bebeeru or Greenheart, of British Guiana, a tree of considerable size and extremely abundant. The bark yields the alkaloid largely, but it is particularly abundant in the nut. A decoction of the latter is the ordinary popular remedy for intermittent fever in Demarara. The nut may be collected in almost indefinite quantities. The process for separating the alkaloid is almost identical with that for quinia, and not more expensive. If therefore, it proves on trial equal in efficacy to that alkaloid, we will have a cheap and effective substitute within the reach of all.

Sulphate of Bebeerine, occurs in shining brown plates, (sometimes with a greenish tinge), is inodorous, and has a bitter, harsh, somewhat astringent taste. Like the sulphate of quinia, it requires an excess of acid for its perfect solution. It may be given in pill, solution, or powder. That it is a good general tonic, in small doses, is very evident. In the full anti-periodic dose it is more apt to disturb the stomach than the same quantity of sulphate of quinia, and occasionally vomits; but it possesses the advantage of being much less stimulating, and does not affect the head as that salt does.

'A letter,' says Dr. Paterson,' from my friend and former pupil, Dr. H. J. Richards, of Grey Town, Nicaragua, of the date of March 25th, 1852, contains the following:—"I have used the Bebeerine, as you suggested, with uniform success in quotidian intermittents. I have since had no opportunity to prescribe it in remittents. All the intermittents of this coast, however, are comparatively easily treated at this season, and yield readily to both quinine and arsenic. The remittents and even intermittents of the fall months, are more virulent and often speedily fatal." Those months will certainly furnish a fairer test of Bebeerine; but it is something to know that, under existing circumstances, it produces the same effect as the quinine.

Dr. Watt, of Demarara thinks that it is tardier in its effects than the quinia, not interrupting the paroxysms so immediately, but he also thinks that its effects are more permanent.

A. J. applied to me with a very similar statement. While residing in New Jersey about six years since, he had a violent and protracted "billious fever," since which time he has had every month or two an attack of "intermittent fever," which has been speedily arrested by quinine. Such was his account of the case. I found his tongue furred, his eyes icterode, his breath offensive, his urine scanty and high colored. The anexoria was complete and thirst considerable. He had a daily slight chillness, followed by considerable fever and a slight sweat. I gave him a mercurial purge and on the next day fifteen grains of the Sulphate of Bebeerine. He complained of some nausea, but no disturbance of the head. The same quantity of Bebeerine was given on the two succeeding days, when, the paroxysms no longer recurring, it was discontinued. He remains free up to this period (April), and says that he enjoys better health than he has done for years.'

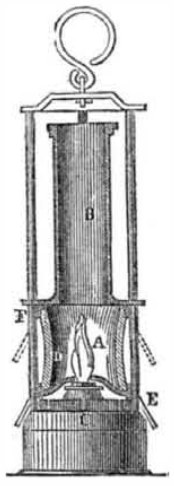
If the permanent character of effect, which these cases seem to indicate, should be established by a more extended experience, we will have in the Bebeerine an agent of very great value, adapted to cases which have hitherto seemed uncontrollable except by arsenic, to which there are so many objections. It is also much more speedy in its effects than the arsenic.

When the sulphate of quinia is so dear, and is becoming more so every year, it is to be hoped that Bebeerine will become a useful substitute for it in cases of bilious fever and agues. This can only be decided by experience; we therefore hope the American professors will soon establish its value in medicine by an adequate extent of observation.

Belgian Safety-Lamp.

This engraving is a view of a new safety lamp for mining purposes, which has been invented by M. Eloin, of Belgium, and which is now manufactured and employed very extensively in England.

The cylinder B, above the flame, is closed, and air is admitted only below the flame through a narrow breadth of gauze, C. A cap, D, on the principal of the solar lamp, causes the admitted air to be brought into actual contact with the flame, and thus producing perfect combustion, giving a light equal to at least five or six ordinary Davy Lamps, and one which the collier would prefer to any candle. There is no wire gauze to be injured, the light being radiated through a thick short cylinder of glass, A; and it has been found in practice that this glass is perfectly secure. It is bound top and bottom by a strong brass



ring, and should it even crack, either by explosion or accident, the pieces would be still held together, and heating the gauze to redness is entirely prevented. The air which enters through the narrow breadth of gauze below the flame being only as much as is necessary to support the flame of the wick, and the combustion being perfect, that portion of the cylinder above must always be filled with the products of combustion, and never with an explosive atmosphere, which is clearly shown by the lamp being extinguished whenever the general upward current is reversed. So confident is M. Eloin of the action of the lamp in this respect, from his experience in the Belgian mines, that he has placed a very coarse wire gauze over the top of the lamp, simply for the purpose of preventing particles of dirt or coal dust from entering, but wide enough to admit flame, if any could be supported in the cylinder. A conical brass shade, E, slides upon the rods, F, surrounding the glass cylinder, which can thus, if necessary, be raised to the top, and form a reflector, to throw the light downwards, when required, which would be very effective, if silvered or even tinned on the inner surface.

Boiler Explosions.

The steamboat captains, engineers, and owners have held a great meeting at St. Louis, and have adopted measures in regard to the bill now before Congress, for the better preservation of life on board of steamboats. Some of the provisions of the bill they are in favor of, but are opposed to others. They assert that if the bill passes in its present shape, it will no doubt operate against the trade on the Mississippi. We have no doubt of it; that is the intention of the bill, in respect to the trade as now carried on upon the Western waters. It is time something efficient was done to arrest the destruction of life on the Mississippi, and those who oppose such measures are not friends to humanity. The meeting was composed mostly of steamboat captains, and we must pay them the compliment of having passed some exceedingly commendable resolutions, among which are the following:—

"Whereas, the late awful and destructive explosions of steam boilers at our city, and in our State, together with their frequency in other parts of our country, call imperiously, if possible, for some remedy against their future occurrence.

While there is danger on the one hand, that the public mind may run riot under the extreme excitement in demands of vengeance, and sanguinary punishment on the authors of these disasters; and on the other hand of resistance to those legislational enactments which may be thought requisite for future security, we acknowledge that the subject demands the most cool, clear, dispassionate, and solemn consideration.

We, the steamboat-men of St. Louis, after due reflection and deep thought upon the subject, now come forward, and freely declare, that we are not only willing, but anxious, to have all the restrictive and cogent laws enacted that are required 'for better security of lives of persons on steam vessels.'

We only ask in effecting this object, that we may not be subjected to useless and uncalled for expenditures and restriction.

We will agree to prove by hydrostatic pressure, that our boilers will sustain 100 lbs. to the square inch more pressure than we shall ever use.

This, we think, ought to satisfy public demand. We go further, and say that upon no occasion whatever, shall steam be raised to a greater pressure than 160 lbs. to the square inch; and in all engines hereafter to be built, the maximum pressure shall be lowered to 130 pounds to the square inch.

In further security, we suggest that every set of boilers shall have a well fitted Test Valve, placed upon an opening of one square inch or more, which shall be exposed to public view, and always be kept perfectly free, having no cord line, or any additional weight attached.

It shall be adjusted by the inspector at the highest pressure of steam allowed to be used.

To prevent its adhesion to the seat, it shall be raised so as to let off steam freely at the change of every watch; that is to say, every six hours, while the boat may be under way; above this valve a whistle may be placed, so as to cause the escapement to be heard throughout the boat.

Flues in boilers of common construction, hereafter built, shall not be more than fifteen and a half inches diameter, and not less than quarter inch iron.

The great causes of evils on our western waters, are often attributable to the misconduct or want of proper qualifications of captains.

They have the general control over their officers and crew.

These are bound by natural and legal ties to provide sustenance for themselves and families. The resources on which they live may be cut off, if they obey not the will of their commander.

We are satisfied that the great object for which the law about to be brought into existence can never be accomplished until the most scrutinizing investigation into character, conduct, habits, disposition, experience, and capability of captains, be gone into by the collectors of ports, or other agents of government.

The facility with which unqualified persons can now build, buy, or become possessed of boats they wish to command, calls for some restrictions.

Ignorant or reckless commanders will often collect around them relations, or others as unqualified as they are themselves. Hence most of our serious disasters.

To provide for filling offices with qualified men, we would suggest that it be made the duty of supervising inspectors to adopt such measures as shall promote apprenticeships of pilots and engineers."

The bill provides most amply for the proper guards to public safety, in preventing other than qualified engineers having charge of that mighty power—the most useful, and, at the same time the most dangerous now used on earth.

By this bill, pilots and engineers will be recognized by law, as holding most responsible stations, and not as mere servants of common carriers.

Hold commanders and owners responsible for not employing these men; but if men be employed in accordance with law, let the guilty party alone be responsible for negligence or crime

The day is past when there was a necessity of making public carriers on our navigable waters, insurers of goods or lives.

There are associated companies established for that express purpose.

[We disagree entirely with this latter conclusion. It would answer the purpose exactly to make these carriers responsible for the lives of their passengers.]

Resolved,—That no Captain, Pilot, Engineer, Clerk, or Mate of any steamboat; while said boat be under way, shall drink any alcoholic liquor, so as to become under its influence; nor shall any officer aforesaid, at such time, play at any game of cards, or at any other device or game of chance whatever.

Habitual drunkenness or gambling, either on board or shore, shall be good cause for revoking a license to any steamboat officer."

An Expedition to the South Seas.

An expedition to explore the South Pacific left England on the 12th inst. The intention is to explore all the islands between Australia and Valparaiso, and particularly the Fejee Islands. Although Capt. Cook and several other navigators have touched at these groups, and marked their position on their charts, yet very little is known respecting them, further than that many of them are surrounded with coral reefs, the land exceedingly fertile, and the climate salubrious, and also that the natives are addicted to cannibalism. The expedition consists of a frigate and a steam tender, and has on board a number of scientific gentlemen.

LITERARY NOTICES.

MACHINERY OF THE NINETEENTH CENTURY—We have received Part 4 of this splendid London work, by G. D. Dempsey, an eminent engineer; it contains drawings of Birch's Machine for Cutting Sash Bars, and Rider's Patent Forge, for which prize medals were awarded. It also contains splendid views of a six horse-power Steam Engine by Fairbairn; Hopkinson & Cope's Double Platten Printing Machine, and Wilson's Patent Paper Cutting Machine. The drawings of this work are very large, and to scale. No machine shop can be posted up on such matters without a copy. It is illustrated from original drawings, including the best examples shown at the Great Exhibition. H. Bailliere, stationer and publisher, 290 Broadway, this city, is agent for its sale in the United States.

CITY DIRECTORY—We are indebted to John F. Trow, No. 49 Ann street, for a copy of Wilson & Trow's Directory of the City of New York, for 1852-53; it contains 25,000 more names than any directory which has ever been published, which is a most valuable testimonial in favor of the new publishers. We have carefully examined it, and so far as we can judge it is essentially correct. It is not a "spurious affair," nor an "imposition," as Mr. Rode would have the public believe, but is evidently much superior to his own. The typography is faultless, and the binding strong and durable.

AMERICAN WHIG REVIEW—The June number of this able political magazine is embellished with a likeness of Senator James Cooper, and containing several literary articles of much merit. Published by C. Bissell, New York, $3 per annum.

GRAIGALLAN CASTLE, or The Stolen Will: by Mrs. Gore, authoress of "Abednego," "The Money Lender," "Men of Capital," etc: New York; Garrett & Co., publishers, 22 Ann st.; price 25 cts. Mrs. Gore is one of the most chaste and excellent writers of the present day.

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